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FOR THE STATE OF CALIFORNIA

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Melissa Jones, Commissioner Advisor

COMMISSIONERS PRESENT

Jackalyne Pfannenstiel

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Lawrence Baird

Karen Griffin

James McCluskey

David Abelson

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(Battelle at) U.S. Department of Energy

Sebastian Tiger
Federal Energy Regulatory Commission

Phillip Huyck
Investment Fund Advisor

Perry Cole
Trans-Elect

Peter Garforth
Garforth International, LLC

John E. Flory
North American Credit and Clearing Corporation

ALSO PRESENT

Joseph Desmond
Assistant Secretary of Resources
Governor's Office

Kathy Treleven
Pacific Gas and Electric

ALSO PRESENT (Continued)

Kevin Woodruff
WES

Gregory Blue
Dynergy

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P R O C E E D I N G S

9:15 a.m.

CHAIRPERSON GEESMAN: I'm John Geesman, the Presiding Member of the Commission's Integrated Energy Policy Report Committee, and we're convening this workshop under that aegis. Sitting to my left is our newest Commissioner, Commissioner Jackie Pfannenstiel, who just joined the Commission on Tuesday. So welcome to our first workshop. And to my right, Melissa Jones, my staff advisor.

We wanted to take advantage of the opportunity of some leading experts from the financial markets to try and lay down a certain, hopefully, common set of assumptions that we can leave the room with today as to the financial underpinnings that will be required to get our markets started again in California. And I think many of you have observed a growing pace of activity in that regard. Hopefully, today can be a significant contributor to that.

We intend to go throughout the day. There will probably be several other people joining us as the day goes on. And despite our furniture configuration, I'd like to keep it as

1 informal as possible and encourage people to
2 interrupt each other, ask questions. Come to the
3 podium up front, present your questions as you see
4 fit.

5 With that, I'll turn it over to Anne-
6 Marie. Welcome back. Look forward to a very
7 illuminating day.

8 MS. BORBELY-BARTIS: On behalf of all of
9 the speakers here today I'd like to thank John
10 Geesman for setting up the second in a series of
11 seminars on infrastructure in California and the
12 finance and restoration for the regulatory
13 markets, what may or may not be possible in terms
14 of that relationship here in the state of
15 California.

16 What I normally do when I start out a
17 session like this -- you can all hear me, right?
18 I still need a mic?

19 CHAIRPERSON GEESMAN: We also have
20 people listening in on the internet, so it's my
21 fault for not warning everyone. It's important to
22 speak into the electronic device.

23 MS. BORBELY-BARTIS: I apologize to the
24 people on the internet.

25 CHAIRPERSON GEESMAN: And for those of

1 you with microphones, when the green light is on
2 your microphone is activated.

3 MS. BORBELY-BARTIS: Good lord. Look at
4 what fun you all have to look forward to.

5 (Laughter.)

6 MS. BORBELY-BARTIS: It's been like this
7 all morning, so bear with us.

8 Okay. Good morning once again. My name
9 is Anne-Marie Borbely-Bartis. I am a in-house
10 full-time technical advisor to the U.S. Department
11 of Energy. Technical advisor, not financial
12 advisor; I want to emphasize that point this
13 morning. So what I'm going to talk about very
14 very quickly in just about ten minutes is a little
15 bit about the infrastructure in the state of
16 California, the state of it today, some issues
17 that we may want to address or think about as we
18 conduct this seminar today. And the rest of the
19 folks here are actually going to talk about the
20 financial markets themselves.

21 What I normally do when I open some sort
22 of a seminar like this is that with the few people
23 that we have here this morning to start this, I'd
24 like to at least get name and affiliation of each
25 person who's here this morning. So why don't we

1 go ahead and start there in the back, and we'll
2 just slowly move forward to the front. Can you
3 introduce yourselves.

4 (Introductions from the audience.)

5 MS. BORBELY-BARTIS: Great, thank you.
6 Well, thank you all for being here today.

7 All right. Like I mentioned, in the
8 first -- I'm just going to try and take ten
9 minutes to run through very very fast a little bit
10 of data to just get us started on this discussion
11 about infrastructure itself, and then I'll leave
12 the rest of the finance discussion to other folks
13 as the day goes on.

14 Just a couple of little ideas that I
15 want to plant about the nature of the
16 infrastructure that we have in place today, its
17 relation to the markets and financing it. And
18 that that means, then, for what it is we're going
19 to talk about.

20 So are both of these now operating? Am
21 I now on -- all right.

22 I never thought -- I just want to open
23 this with this thought very quickly here -- I
24 never imagined when we did our first seminar in
25 January of '03 that the graphic that would be most

1 appropriate for opening this particular piece of
2 the infrastructure discussion would actually be
3 one of these sort of miniature perfect storms. I
4 thought that we had done this already.

5 I'm going to talk a little bit, very
6 briefly, about the summer of '04 that's coming up.
7 I think we have some issues as a national analyst
8 looking out across the western grid. I'm going to
9 give you a sense of what it is that I see and what
10 we see when we look across the entire western
11 United States, and I'll start by comparing that
12 with a couple of comments, comparative comments
13 from the California Public Utility Commission,
14 talking about what they see native to California
15 as how they feel that electricity and gas demand
16 will be managed or will be viable for this -- for
17 this summer.

18 All right. As I mentioned, the current
19 conditions right now. The PUC estimates -- and
20 this is from an early CEC document from last
21 summer -- a decrease in gas demand from gas-fired
22 electric generators for the summer of 2004, based
23 on the following three sort of over-arching
24 concepts here: a substantial number of new plants
25 that are actually going to displace power produced

1 from older inefficient plants; there will be a
2 return to a normal hydroelectric generation cycle
3 across the Pacific Northwest; and new power plants
4 under construction in neighboring states, when all
5 else fails, will, in fact, then give us import
6 capability to supplant anything that is not viable
7 within the state, or any deficit that we may run.
8 So that was June of '03.

9 If we continue with current conditions a
10 little bit -- I put this together last night -- I
11 will come back to this in a moment. There's a key
12 point here that I want to drive home about the
13 central plant infrastructure we have in place
14 today. And what I want you to notice is that
15 about half of all of this is -- what do we have --
16 combined cycle gas turbine, simple cycle gas
17 turbine, steam. All subject to emissions
18 regulations in one form or another in order to
19 operate.

20 And if you see here, we've got summer
21 capacity for 2004 broken out between southern
22 California and northern California, and you'll
23 notice the same phenomena here in terms of what is
24 actually installed and subject to emissions
25 regulations in order for it to operate. That's a

1 point that I will, I'm going to harp on that a
2 little bit, but I think that that's an issue that
3 needs to be addressed in terms of what will our
4 real capacity be as we move into July and August.

5 Current conditions we well, on the wire
6 side. I apologize, I didn't have time to pull out
7 the California numbers so these are the national
8 aggregate. Twenty percent of all outages occur in
9 the transmission system. When they do, those are
10 the biggies, and that's why we tend to pay
11 attention to them politically.

12 It is expected that by 2010 we need to
13 build about 26,600 new miles of transmission, high
14 voltage transmission across the country, just to
15 keep pace with additional capacity and demand as
16 it is needed. That's about 2600 miles a year, for
17 a total investment of new capital of \$25 billion
18 by 2010. And you can extrapolate out from that
19 the demand and the load and the population of
20 California what that might be.

21 Eighty percent of all outages, and we're
22 not going to talk about this today, but it's
23 extremely important, actually occur in the
24 distribution system. Smaller, more localized,
25 much more frequent. Projected investment

1 requirements is about \$10 billion annually through
2 2010, that is not occurring, for a total of about
3 five times the investment, the new capital
4 required in the distribution system versus the
5 transmission system.

6 We're all familiar with some of these
7 numbers and the general trends. I just wanted to
8 bring this home here today. And again, this will
9 combine with the rest of what I'm going to mention
10 here in a minute.

11 And so we get to what I call the
12 immutable laws of supply and demand and how it is
13 that they relate to energy infrastructure we have
14 today. And this is the crux of the issue in terms
15 of what we've designed and how we finance it,
16 where we get into this problem of gigawatt scale
17 investments and over-capacity and under-capacity.
18 It's because for every one kilowatt or one unit of
19 demand that we generate in this country we need
20 three units of generation capacity, ten units of
21 energy in the primary field, and I'll explain this
22 again in a minute.

23 We need additional transmission capacity
24 and distribution. We need substations, we need,
25 we need gas processing facilities. Tremendous

1 infrastructure behind this variably operated fixed
2 price demand. And the capital costs are fixed for
3 the infrastructure itself, and we have
4 traditionally made fixed price on the demand side
5 so it doesn't experience any sort of price signals
6 for what it is that's actually happening on the
7 variable operating side of the infrastructure
8 itself.

9 How did we get to a point where we have
10 these gigawatt scale decisions with this imbalance
11 in cost versus pricing signals. You have to go
12 back to 1929 and the evolution of PUHCA, the
13 Public Utility Holding Company Act of 1935, and
14 the crash of the holding companies. This actually
15 will resonate with us today.

16 We didn't like the idea that holding
17 companies could move their assets from one state
18 to another and hide them from regulators' eyes or
19 any sort of oversight, and so we established this
20 concept of the Public Utility Holding Company Act,
21 and that states would actually regulate entities
22 that had monopolies within a given territory, and
23 therefore there would be oversight over those
24 assets and the revenue or loss of them.

25 Very important here. There were three

1 metrics in 1929 that we regulated utilities into
2 existence for, three, and only three, that you
3 would provide -- you, being the utility --
4 universal access, everyone who wants electricity
5 will get it. Everyone who wants electricity will
6 get it. This is a social policy and very
7 important. Rural customers in small towns were
8 not being electrified. It was decided that that
9 was not appropriate. It will operate -- once
10 again, this is very important -- at a minimum
11 level of reliability. That we can't have whole
12 communities without power for weeks or months.
13 Minimum level of reliability.

14 Boy, has that changed over time. We
15 really need an optimum level of reliability now.
16 But those three original metrics still guide every
17 state public utility commission in the nation.
18 And it will operate at some sort of socially
19 acceptable cost. In other words, utilities will
20 be allowed to spread their costs across fixed
21 pricing structures for all customer classes for 30
22 year periods. They'll be allowed to amortize over
23 30 years. That's it. Three metrics; no more.

24 A lot has changed since then, but those
25 three metrics are still the way in which we

1 regulate utilities. What is the result of those
2 three metrics and only those three metrics?

3 Well, this is one of them. I said
4 everybody gets electricity. We encouraged the
5 development of electric appliances. And what I'm
6 showing here, it's a little ironic. Something
7 happened, and I have one to 101 percent down at
8 the bottom. I'm sure you'll notice that. Assume
9 it's zero to 100.

10 On the left-hand column you'll see that
11 it's percent of grid utilized. This is actually
12 aggregated annualized feeder data, distribution
13 feeder data across, I believe it's SoCalEdison's
14 territory, actually. And what I'm showing here is
15 if you look at the percentage of the hours in the
16 year, 20 percent of all of the capacity -- I mean,
17 do I have that correct -- I'm sorry. One hundred
18 percent of the average in a given year, 20 percent
19 of the transmission and distribution system is
20 fully utilized. Twenty percent of the hours in
21 the year.

22 I mean -- I have it backwards. I
23 apologize. A hundred percent of the average in a
24 year. Twenty percent, and that's the baseload of
25 industrial and institutional.

1 Then, as we move up through the shoulder
2 in the commercial and residential sectors you'll
3 see that the capacity has been built out and is
4 very very poorly utilized, or what we call the
5 needle peak, which across the country is the
6 fastest growing segment. Very, very few hours in
7 the year, generally less than 100 hours in a year
8 in which we can actually recover the costs of
9 those fixed capital assets, and that is primarily
10 being caused by air conditioning, especially in
11 the western United States.

12 So we have this sort of disparity in the
13 cost structure here based on those original three
14 metrics.

15 Here's another result. Over 90 percent
16 of the Btus, actually it can get as bad as 98
17 percent of the Btus in the original fuel, if you
18 look at this, fuel in at the central power plant,
19 if it's oil or gas or coal, 67 percent of the
20 energy actually goes up the stack in thermal
21 losses before it even enters the transmission
22 system. It's then stepped up to high voltage AC.
23 Between the transmission and distribution systems
24 there's a 7 to 11 percent loss of electricity. It
25 can actually go up as high as 15 percent in a

1 couple of places where the transmission system is
2 constrained, and we're running it in parts of
3 southern -- in southern territory, in the
4 southeastern United States.

5 Path 15 may experience this at times, as
6 well, in the midst of summer if you're running it
7 at better than 100 percent of load. And you'll
8 see some sagging in the wires there.

9 A significant reduction, then, in
10 thermal losses that you see there, a high square
11 of losses.

12 Here's a catch. This is something that
13 most of us forget, or overlook. So let's say that
14 25 percent of the original energy in that fuel is
15 now entering the home. If your home was built
16 prior to 1990 it probably falls under the 1980
17 electric code, or even earlier. I speak to
18 electrical inspectors across the country. In
19 Nevada they use the 1978 NEC for determining the
20 wire size and the wiring appropriateness and the
21 installation of that within the home. This is all
22 pre-digital economy.

23 The appliance loads and the amperage
24 requirements within buildings today are far
25 exceeding the thermal -- the thermal capabilities

1 of the wires that are in those buildings yourself.
2 If your home, if you have a significant number of
3 appliances, especially digital appliances in your
4 home today, and your home is more than 10 or 14
5 years old -- turn wireless microphone off. Thank
6 you. Okay. Can't have the best of both worlds.

7 Okay. So as electricity enters the
8 home, we now have somewhere between 10 and 30
9 percent high square losses occurring within
10 buildings themselves. Once you actually enter the
11 commercial or residential building yourself. We
12 have a new generation of thermal losses that are
13 going on.

14 And in this case, what I'm showing you
15 here is useful light, I'm calling this, in the
16 original fuel, you notice up front, by the time we
17 produce an end product. The product we're really
18 looking for is lighting or heating or cooling, or
19 something to manage a process. We don't
20 necessarily want electricity. Nobody says I think
21 I'll go out and buy a bunch of electricity today.
22 They're looking for specific end products.

23 Useful light, straight from the
24 president of General Electric Lighting. The
25 efficiency of an incandescent light bulb, once we

1 get down to that, is about three percent of the
2 original Btu content, energy content in the fuel
3 itself. This is the system that we designed in
4 place and that we continue to finance.

5 You'll notice that as you move down
6 through CFLs and LEDs, the -- any work that we do
7 at the very bottom, at the load, like that,
8 significantly improves things like what we worry
9 about at the national level, is energy security,
10 and how long will our oil and gas and coal
11 reserves last.

12 Here's another result, stagnant
13 efficiency. You'll notice from this that from
14 about 1960 on we haven't had significant
15 efficiency improvements in central plant itself.
16 And I do realize that combined cycles can realize
17 much higher efficiencies than this today, but
18 that's one of the reasons why I wanted to show
19 you that slide earlier. I did a recent analysis
20 across the country; 50 percent of all of the gas
21 turbines installed in the U.S. today are simple
22 cycle, not combined, 17 to 28 percent.

23 A lot of that has to do with the
24 collapse of the capital markets itself. They were
25 permitted for combined cycle, first stage was

1 installed, the markets fell, demand was -- demand
2 fell, as well, and the second cycle was never
3 installed. Seventeen to 28 percent. So those
4 early numbers that I showed you actually get
5 worse. And I just thought that was a rather
6 profound point there, that we waste far more
7 energy than it takes to actually power Japan on an
8 annual basis.

9 All right. So overlaying that history
10 of how, the regulations and what it is that it
11 produced in terms of physical infrastructure
12 today, a series of values have emerged, social
13 values. And those three metrics really were
14 social policy metrics that we originally came up
15 with. And look at what has happened in the
16 interim.

17 Rachel Carson and the original Silent
18 Spring, and air and water quality, the Clean Air
19 Act, the Clean Water Act, energy efficiency and
20 the whole concept of fuel choices, and we all
21 remember the oil embargo in the seventies and the
22 idea that -- the images of Jimmy Carter in his
23 sweater and the moral equivalent of war, and
24 renewable energy sort of coming into its own in
25 the 1980s with the serious development of wind and

1 PV systems, although we still have some technical
2 issues there. The whole idea of community
3 participation entered into energy planning and the
4 whole energy landscape and the business model of
5 open meetings and public policy on all of this.

6 And finally, in the 1990s, certainly
7 anyone in California will be familiar with this.
8 The digital age and the whole concept of power
9 quality and reliability and the nines of
10 reliability, none of this, and finally, in 2001,
11 obviously, the whole idea of self-healing networks
12 and event recovery. Certainly at the national
13 level that's a very big deal these days.

14 Not one of these metrics shows up in the
15 original three that I -- that I showed you, as to
16 how it is that we designed or regulated the
17 business model.

18 Also overlaying this is a consumer base
19 that has become increasingly sophisticated through
20 building control systems and wireless
21 communications. The marginal cost of a new unit
22 of capacity in the wireless world is significantly
23 less than the marginal cost of a new unit of
24 capacity in the wired world. Those, we have not
25 captured those efficiencies, those operating

1 efficiencies in our regulated utility landscape,
2 to date. Programmable thermostats. The whole
3 idea of load control and how that might
4 participate in making a much more elastic
5 marketplace.

6 The customer base that I'm showing you
7 here, that's why there are various bubbles that
8 you have on the left-hand side. On the right-hand
9 side, what you see is a landscape of still
10 relatively control specific top-down hierarchy,
11 very flat tariffs, flat information landscape of
12 the regulated world, versus the innovation of the
13 unregulated.

14 This is what we don't have, but I'm sure
15 everyone here -- how many people here have ever
16 taken like an Economics 101 course? I'm sure
17 everyone here has. So you're familiar with the
18 whole concept of the supply/demand curve, and P1
19 S1, and it's presumed that as price increases then
20 demand will decrease or will move off to a new
21 commodity.

22 This is what we actually have. It looks
23 absolutely nothing like the previous graphic. On
24 the bottom, demand, you have that short of
25 chunking out, kachunk, kachunk, out to 50 percent,

1 demand up to 100 percent of capacity, that grid
2 that I showed you earlier. And we have costs
3 slowly moving up. What I'm showing you here is
4 the cost of actually delivering and managing that
5 peak load, starting at five cents, moving up to 20
6 cents a kilowatt hour, 45 cents a kilowatt hour,
7 80 cents a kilowatt hour, moving ever higher.

8 The price signal never changes. If we
9 actually could in some fashion introduce a small
10 amount of intelligent demand elasticity and demand
11 response to this, look at how significant the
12 marginal cost of operating the system, how much it
13 goes down. Marginal cost of operation. We're
14 only talking about, let's say a -- as it says
15 here, the numbers are illustrative. Let's say
16 that it's a seven or eight percent reduction in
17 demand. Massive reduction in cost, in marginal
18 cost. Again, these sorts of metrics optimized in
19 the system simply did not exist initially.

20 So we're back to that storm in 2004, the
21 three points that the PUC made earlier saying
22 that, not unlike other reports I've read, that
23 things might be a little bit tight this summer,
24 but I think we're going to be okay.

25 Here's what I see as a national analyst,

1 looking at the -- out across the United States,
2 and I just wanted to bring these points up today,
3 and sort of keep them in mind as we're talking.

4 Nationwide, electricity demand is up
5 almost seven percent over this time last year.
6 Seven percent. And it will increase across the
7 summer. This is a massive difference. No analyst
8 was expecting this. Massive increase over what we
9 were expecting. And a lot of this increase
10 actually is coming from what we call the consuming
11 regions of natural gas, which is the western
12 United States. That's the commercial and
13 industrial sector. As I said, it's picking up
14 faster than we had expected.

15 The drought effects. Wildfires beneath
16 high voltage transmission lines is something that
17 actually I think is a very real issue in some
18 parts that we need to be aware of. BPA is, in
19 fact, reporting that hydro is not at normal this
20 year, it's somewhere just south of 80 percent of
21 normal. And within California, of course, it's a
22 little bit different, as well.

23 Older, more inefficient plants have not
24 been replaced. And again, that gets back to the
25 capital markets. Expected new capacity in the

1 western U.S. that might feed into import capacity
2 in the United States has also stalled. I mean,
3 actually I'm sure that Philip can speak to that
4 quite a bit.

5 NOAA is forecasting, look at this, that
6 California is probably going to be hotter than
7 historic norms for June, across all of June. And
8 as a national analyst, again, what I'm thinking is
9 are we going to use up NOx credits early. If we
10 actually have excessive AC demand and load and
11 we're actually moving into the peak and all of the
12 peakers come on, are we going to run through NOx
13 credits, and what does that mean for July and
14 August and September.

15 July and August, actually, in California
16 it's expected that they will revert to seasonal
17 norms. But inland of that in the west, and
18 especially Nevada, Wyoming, Colorado, Arizona and
19 New Mexico, may all require significant internal
20 domestic capacity to be used for their own
21 domestic AC load. There may not be a whole lot
22 that's available, especially because a lot of
23 these plants pre-drought, or the beginning of the
24 drought, were sure it'll only last for one year,
25 surely it'll only last for two years, are, in

1 fact, water cooled. And that's a real issue now.

2 So the last thing I want to leave you
3 with in terms of this infrastructure question, and
4 then we'll talk about finance for the rest of the
5 day, is here's one particular demand response
6 program that has been incredibly successful, and I
7 would love it if either the CEC or the PUC would
8 have any interest in investigating it further.

9 This was Gulf Power up in the panhandle,
10 looking for innovative ways to defer capacity
11 increases. And they went to the Florida Public
12 Service Commission and they said we have an idea
13 for something that will give us event specific
14 demand reduction with no net thermal inconvenience
15 to our customer base; what do you think of this.
16 And so this is what they put in place.

17 Customers who opt for this, their low --
18 and Florida has low, all across the southeast,
19 very low, low prices. If you are a regular
20 customer and you do not decide to opt into this,
21 you pay six cents a kilowatt hour, 24 hours a day,
22 seven days a week, as a residential customer. If
23 you opt in, your low rate is going to be four
24 cents, medium, shoulder and high it goes up to ten
25 cents. Eighty-seven percent of all of those hours

1 annually are actually low or medium. So right off
2 the bat, by joining the program you're actually
3 reducing your bill. And, as I mentioned here, the
4 average residential tariff.

5 A critical condition may only be called
6 for up to one percent, or 88 annual operating
7 hours. During a critical condition the cost of
8 electricity to every customer who has opted into
9 this program is about 30 cents a kilowatt hour.
10 That is the real price of purchasing electricity
11 on the spot market or running the peakers and
12 managing the O&M on that peaking piece of the
13 grid.

14 Your thermostat within your home is
15 programmable, it'll flash to notify you that
16 sometime in the next 30 to 60 minutes you are
17 going to head into a critical period, and you will
18 automatically have some of your load shed. A
19 customer can opt out -- I think this is very
20 important -- by hitting an override button. But
21 they recognize that if they decide that they
22 really need to bake this cake now, or they really
23 need to have their air conditioning going at full
24 blast right now, that they're going to pay 30
25 cents a kilowatt hour, and that is the contract

1 that they've signed. They're cognizant of that.

2 What kicks in is pre-set thermostat settings, pool
3 pump and hot water heater also cycles off.

4 The benefits of this -- I think this is
5 actually rather remarkable considering, like I
6 said, six cents a kilowatt hour is the aggregated
7 tariff for Florida customers -- they're still
8 saving on average 15 percent off of their bills,
9 and they're paying \$5 a month -- don't have that
10 here -- \$5 a month to be in the program in the
11 first place. They're still saving 15 percent on
12 their average energy bill. Very high customer
13 satisfaction rate for this. Three to four percent
14 churn rate, that is half of the churn rate for
15 some of the best telecom providers today in the
16 United States. Very high satisfaction.

17 And look at this. They're getting, in
18 the summer, two kilowatts on average, sometimes
19 more, demand reduction per household per event.
20 In the winter, three kilowatts of demand reduction
21 per household per event. That's huge. They're
22 allowed to ultimately, I believe, they have 10,000
23 customers signed up today, they're allowed to move
24 to as high as 40,000 customers.

25 This is something I think, in terms of

1 the summer of '04 and the summer of '05, that the
2 state of California might want to seriously
3 investigate, is what is the cost of actually
4 installing this, how quickly can it be done, and
5 what would the customer response be here.

6 It can also give distribution system
7 optimization, and I think that's something
8 incredibly important, as well. Specific homes on
9 each feeder have their own page sent to them, so
10 you could actually, if a particular feeder is
11 beginning to feed up, you can actually back off
12 that feeder a little bit and perhaps prevent one
13 of those 80 percent of all the outages.

14 The last thing I want to leave you with,
15 then, as we move into the financial discussions,
16 is just a reminder that there was a time actually
17 when we had a lot of common sense in coming up
18 with regulations, we really did. We didn't need
19 -- I was going to show you what utilities call the
20 seven levels of pain, and those are the seven
21 levels regulation and regulatory bodies that we
22 have in place today, from the building code
23 official to FERC, and NERC, to some degree, that
24 utilities and energy service providers have to
25 interact with. That's a significant amount of

1 oversight at this point. And if there is some way
2 to actually rationalize that whole process, I
3 think it would be best of the industry, in
4 general.

5 So I'm just going to show you very
6 quickly, I think it's ironic, these were federal
7 regulations for the airline industry. Don't take
8 off -- don't take off unless you think it can fly.
9 We have books now on verifying that this can fly.
10 I think that's actually rather straightforward.

11 Learn how to gauge altitude prior to
12 attempting your first landing. I think that's a
13 good idea, as well. If you see another plane in
14 the way, get out of the way. Do not take off
15 until you actually know how to fly the plane
16 itself, and you're familiar with the controls and
17 instruments. In an emergency, try to land the
18 plane as quickly as possible. And, in fact, total
19 number of regulations for the federal airline
20 industry was 25.

21 Now, if we go back I don't know how many
22 crashes we'd actually find or how many near misses
23 we'd find, but I just wanted to remind us all that
24 this is not rocket science, per se, in terms of
25 regulating this business model. We can do this.

1 It can be straightforward. It can be simplified.

2 So thank you very much. We're going to
3 take a quick break here, then, to move over to
4 Sebastian FERC, who is the next speaker here. And
5 for the rest of the day -- now I've got to go back
6 to turning this on and off.

7 CHAIRPERSON GEESMAN: Before Sebastian
8 begins, let me introduce Joe Desmond, who has
9 joined us, the newly appointed Assistant Secretary
10 of Resources for Energy, and one of the principal
11 energy advisors to the Governor.

12 Joe, welcome.

13 MR. DESMOND: Thank you, John.

14 MS. BORBELY-BARTIS: For the rest of the
15 day, then, please remember that it's very
16 important. I've asked the speakers to give about
17 30 minutes of comments, and then leave room for
18 dialogue with the audience. It's really important
19 to hear what it is that you think of what it is
20 that you're hearing today, provide some feedback,
21 some commentary, ideas about okay, if this is
22 true, then what do we do about it?

23 We will have a facilitated discussion at
24 the end of the day, but please take advantage of
25 each one of the speakers specifically today, to

1 ask questions as much as you can.

2 MR. TIGER: Great. Thanks very much,
3 Anne-Marie.

4 First of all, I just wanted to introduce
5 myself and tell you where I come from within the
6 Federal Energy Regulatory Commission, which is the
7 Office of Market Oversight and Investigations,
8 basically established post, you know, the tumult
9 that you all experienced here, as well as the
10 Enron crisis, to fill a gap, essentially, within
11 the Commission's ability to understand and police
12 the markets.

13 This is an adapted slide from sort of
14 Chairman Pat Woods' concept for how competitive
15 markets can lead to our version of, of the rates
16 that Anne-Marie mentioned in terms of one of those
17 three sort of primary conditions for utility
18 regulation, which in our case is fair and
19 reasonable rates. Essentially, it's sort of a
20 three-legged stool, the first of which, you know,
21 is sufficient infrastructure. The second is
22 effective rules, and the third is vigilant
23 oversight, which theoretically or hopefully lead
24 to competitive markets and ultimately through
25 competitive markets to fair and reasonable rates.

1 Within the Commission there are three
2 essentially line offices. The well design rules
3 is the Office of Markets, Tariffs and Rates.
4 Adequate infrastructure primarily is the
5 responsibility of the Office of Energy Projects,
6 and LMOI is responsible for vigorous enforcement.
7 But we're not only responsible for that, we're not
8 only supposed to be a cop on the beat for
9 compliance, and to give you a sense, there's about
10 110 people in LMOI, 55 of whom are involved in
11 basically the investigations side of the business
12 and enforcement side of the house. And, you know,
13 they are working on negotiations and the like of
14 some of the, the -- trying to come up with a word
15 -- the, you know, the debates over and the legal
16 challenges over the 2001 period for you.

17 But we're also supposed to act as the
18 eyes and ears of the Commission and attempt to be
19 a feedback loop to them, essentially, of how their
20 -- their policies are affecting both the energy
21 and the financial markets, and I spend a lot of
22 time on looking at the financial aspects of that
23 feedback loop. And that is related, you know, in
24 an unprecedented period of weakness of the --
25 financial weakness of the players to look at the

1 strength of those participants. You know, we had
2 sort of unprecedented levels of bankruptcy
3 filings, both, you know, regulated entities like,
4 you know, PSE&G -- I mean, PG&E, as well as, you
5 know, unregulated or merchant players.

6 And as well as looking at the impact of
7 credit and clearing and sort of liquidity in the
8 markets and that, its ability to enhance the --
9 the function in competitive markets. I mean, if
10 you don't have a lot of players, if you don't have
11 a lot of liquidity, how can you claim that it's a
12 competitive market that's leading to fair and
13 reasonable rates. So, and then what I've looked
14 more at, which is sort of cost of capital and
15 availability of capital for infrastructure
16 finance.

17 I came from the banking world, was an
18 investment banker for several years in New York,
19 and so I tend to be more outward looking in
20 talking with -- with investors of all types, and I
21 think that, you know, later speakers will address
22 the specific interests of those different types of
23 capital. But, you know, traditional equity
24 investors, fixed income investors, rating
25 agencies, investment bankers, private equity,

1 hedge funds, and, you know, I've spoken with the
2 gamut of those on a regular basis. And those who
3 hold California IOU stock, those who advise on,
4 you know, the financing for merchant or QF plants,
5 or did so, or they're restructuring today. You
6 know, people who financed Cal Gen, which is a big
7 Calpine deal that just got done in, in the, sort
8 of in the institutional market, as well as those
9 who have invested equity and provided debt
10 financing for transmission projects. And those
11 who won't touch California. Those who just won't
12 invest because they, they are uncomfortable with
13 the regulatory and legal structure.

14 I want to make clear that what I say,
15 I'm going to say today, does not represent the
16 positions or the policies of the Commission. I'll
17 try to weave in, hopefully, how those FERC
18 policies relate to financial issues, but I'm not a
19 Commissioner, I don't know their minds, I can't
20 speak for them. And also, having been at the
21 Commission for, you know, a little bit less than a
22 year, I actually don't know enough about its inner
23 working to be the best representative to tell you
24 about some of the regulatory subtleties.

25 What I can hopefully do, though, is give

1 a sense of what investors want, how those relate
2 to those areas where we have some regulatory
3 authority and, and our policies, and I'm not
4 advocating those positions, either. So if a
5 banker says we need this, I'm not saying, you
6 know, that regulators have to give it to them, per
7 se, but it'll help in terms of, of infrastructure
8 finance.

9 One thing is, is that a lot of the
10 issues that are confronting California in terms of
11 obtaining infrastructure finance are also felt by
12 other regions in the country. A lot of them are
13 systemic, and, you know, they may be more acute in
14 California and in a couple of other low pockets in
15 the U.S., but there are a lot of general things
16 that can be said across the board.

17 Two weeks ago I was in New York and met
18 with the New York City Mayor's Task Force on
19 Energy Policy, and that's a stakeholder process
20 that includes the Economic Development Corp, the
21 New York Public Service Commission, the load
22 serving entities like Key SPAN and Con Ed, as well
23 as consumer public advocates, and they're having
24 the same types of debates that are occurring here
25 but they do have a stakeholder process and they

1 look at, you know, a lot of the same issues. New
2 York has almost got it just in time sort of supply
3 system, which has parallels to some areas of
4 California's, at least today, and there are a lot
5 of the same issues of financial incentives and --
6 or lack thereof -- for new build, given the sort
7 of fragmented regulatory structure that, that
8 bring to bear.

9 I just wanted to highlight two projects,
10 or two potential infrastructure solutions for New
11 York, one, which is a recent success, and the
12 other, which is a recent failure, because I think
13 that they can show a little bit about, you know,
14 what's necessary to get things done there which
15 has implications for California.

16 The first is a generating plant that has
17 just received both debt and equity financing, and
18 it's the first basically independent power project
19 built in New York for 20 years, or in two decades,
20 and that's the SCS Astoria project. And the
21 things that are interesting about it are is that
22 it has a PPA, but it's quasi-merchant, so there
23 actually is an ability to take some merchant risk.
24 And by that, I mean, you know, not a guaranteed
25 rate of return, not a contract that sets full

1 pricing for the full term of the debt or the
2 useful life of the asset. And it has a PPA with
3 Con Ed, but that PPA is -- at market prices it has
4 a floor, but that floor is not so high as to be
5 able to pay off all of the debt, and so it's not a
6 traditional full, full take or pay kind of
7 contract from the perspective of project finance.
8 And it also has a cap on prices. So, and it's for
9 ten years, and obviously that's not as long a
10 contract as, as traditionally would have been done
11 before sort of the merchant bubble.

12 Con Ed asked for and received full pass-
13 through of the cost of that PPA to ratepayers.
14 Even if people are not, the structure there, and
15 this is -- sort of relates to core, non-core to a
16 certain degree, even in the case where people opt
17 out of having Con Ed act as their supplier of
18 energy, the -- that cost, through the vagaries of
19 the New York Public Service Commission's
20 regulatory structure, gets tagged onto their
21 distribution charge.

22 So, some of the value, though, and the
23 reason that people were willing to provide equity
24 and debt financing for the project independent of
25 the contract, are the fact that New York is a load

1 pocket, and the fact that it has both locational
2 energy prices and locational capacity prices that
3 signal and that have been somewhat constant over
4 the period where they've had those structures, so
5 that people can get confident that they will
6 recoup within market based pricing, you know, a
7 return on their investment. So, you know, that's
8 a success.

9 On the merchant transmission side, we've
10 had a recent failure of conjunction LLCs attempt
11 to do an open season for, for capacity along a
12 line that was to be built from the capital region
13 in upstate New York down into, into New York City.
14 And, you know, it should have, on the face, been
15 able to tap the same capacity and energy market
16 dynamics, you know, but it was given, you know, a
17 lot of regulatory structural advantages in that
18 basically capacity bought upstate would count as
19 in state for the purposes of the ICAP market, the
20 capacity market, as well as being able to sell at
21 New York energy prices.

22 It put a lot of the development risk on
23 the developer and on the equity sponsor, but it
24 didn't get done, and a lot of the reason that it
25 didn't get done had to do -- partly had to do

1 with, at least as we've heard from participants,
2 with an inability to sign up for that type of
3 contract for a five-year period. And later
4 speakers may talk, will be talking more about
5 merchant transmission, but, you know, I think it
6 gets back to the fact that structure is important.

7 Now let's switch to California, where,
8 you know, you could view southern California as
9 one big load pocket, and a lot of the same issues
10 can, you know, can be viewed there in terms of
11 weakened competitive landscape, in terms of seams
12 between wholesale and retail markets, questions
13 about resource adequacy, and the difficulty of
14 parsing economic from reliability projects. Those
15 are some of the big themes you'll see coming
16 through these things from a regulatory
17 perspective.

18 One thing is, is that, you know, if you
19 have exit, or the threat of exit, it's hard to
20 contemplate entrance. And so, you know, there are
21 other places in the country where that threat or
22 reality of exit is occurring, so we in the
23 Commission see that in southwest Connecticut, we
24 see it in PJM, in parts of PJM, and people, other
25 regulators at the state level and at the federal

1 level are trying to grapple with how and if to
2 provide interim cash flows to keep plants running
3 for grid reliability that claim that they are not
4 compensated for going forward costs even, while
5 the whole slow process of actually getting
6 transmission lines sited and built takes place,
7 and allocate, and the costs allocated.

8 So it's not just California. But one
9 thing I will say is that talking to most
10 investors, things are harder in California from a
11 financial perspective. So, and that, you know,
12 from a -- from a -- simplest way you can look at
13 that is from a cost of capital perspective. And
14 I'm going to start first with the equity side,
15 where there is basically considered to be the
16 equivalent of a quasi sovereign risk added to
17 California utility PEs, you know, at least as
18 described to me.

19 It's not all encompassing, however, and
20 the useful comparable way of comparison to try to
21 measure that, and this is by no means an
22 exhaustive analysis, but it's, I think,
23 illustrative, is that if you look at the equity
24 cost of capital of PG&E, which upon exit from
25 bankruptcy is a pure play utility, you know, and

1 after writing off, you know, the former NEG, the
2 -- basically, the, if you compare that to other
3 defensive utility stocks that are as close to pure
4 play as you can get, and a lot of utilities are
5 returning to that, there's a, basically an 11 to
6 12 times forward price to earnings. Basically
7 what you're paying for the future earnings of the
8 utility for PG&E, and that compares to basically a
9 13 and a half to a 14 times for some of the
10 comparable companies, be they Southern, Con Ed,
11 and there are others similar to that.

12 So that's a 15 to 25 percent discount,
13 and a lot of that relates to what's the risk of
14 those future earnings. How do those, you know,
15 how are they viewed, and a lot of that -- even in
16 the case where the bankruptcy court has cut out a
17 lot of regulatory risk by establishing, you know,
18 a target capital structure and a allowed ROE,
19 they're still a discount, and that speaks to, you
20 know, some concerns about California.

21 On the brighter side, I think on the
22 debt markets, that given dynamic in the -- in the
23 debt market, that the state utilities have had a
24 -- have seen a real and a relative decline in the
25 last year and a half in terms of the cost of

1 capital, and in terms of the risk premium, to out
2 of state utilities. And the, you know, basically
3 -- and some, depending on who you talk to or how
4 it's measured, that that differential has actually
5 totally gone away. Which is an encouraging,
6 encouraging sign.

7 And the way that you can sort of get a
8 sense of that is by looking at where the utility
9 debt trades in the secondary market, so where
10 bonds trade in the secondary market, as well as
11 looking at the credit default swap market, which
12 is a way, a proxy for default risk. And so
13 basically, the spreads. And again, this is a
14 supply and demand issue within those markets, but
15 it's about as close a proxy as you can get to.
16 The spreads for California utilities today are at
17 or tighter than those for other utilities, or
18 comparable utilities. So that's, that's a good
19 sign.

20 The thing is, is that when you say
21 comparable, generally the way people look at that
22 is to compare it with other rating -- utilities of
23 comparable ratings. And that's one of the ways
24 where California is getting tagged, because if you
25 look at the credit fundamentals of the -- of

1 California, and I'll specifically look at PG&E, it
2 would imply that they would have a higher rating
3 than they currently entertain from the credit
4 rating agencies. For credit fundamental reasons,
5 meaning what's their debt to equity ratio, what
6 type of coverages do they have in terms of their
7 debt service, those kind of measurements on credit
8 fundamentals, it's sort of an A-ish rated utility,
9 in the A range, and that speaks to the probability
10 of default as well as the likelihood of recouping
11 investment after default.

12 However, they have a Triple B-minus,
13 meaning the lowest investment rating today from
14 the rating agencies, and if you speak with them,
15 you know, a bit of that is related to continued
16 concerns about regulatory risk and market
17 structure.

18 So that's where it's tagged, right. The
19 thing, if you look at how things trade in the
20 secondary market, that is an implication for where
21 new issuance will come out, right. So there may
22 be a slight premium or discount to where it's
23 trading in the secondary market, but essentially
24 that's a good proxy. And so the, the, you know,
25 that's sort of how one can get to look at that.

1 Now, I want to just go forward a couple
2 slides, and just say that the phenomenon of
3 weakened credit ratings is not only that of
4 California. Right. That's also systemic. Okay.
5 If you look at S&P's ratings distribution, you've
6 seen a profound change from 2001 to 2004 of the
7 credit quality of the whole sector. Whereas at
8 the beginning of this period, the utility world
9 was an A rated type of world, now, based on all
10 the stuff that's happened, it's basically a Triple
11 B rated world with a tail, meaning a now more
12 significant portion of junk, i.e., non-investment
13 grade, you know, participants.

14 And if you look up in the upper right-
15 hand corner you can see the ratings actions,
16 meaning the number of downgrades or upgrades. So
17 it's -- the trend is no longer as pronounced in
18 terms of people being downgraded, but that partly
19 may reflect that there's, you know, a lot -- not
20 much lower that some people can go. So I think
21 people, there has been a change, a turn, and
22 things are probably improving in the big picture,
23 but it's not just a California issue. It, it's
24 systemic. So I just, you know, to note that.

25 I think that if you're thinking to get

1 to -- basically one thing that that chart doesn't
2 do is break out the weakness of the merchant
3 players, though. And if you look at the
4 merchants, all of them are non-investment grade,
5 both based on credit fundamentals as well as based
6 on the way that the rating agencies look at the
7 merchant business. Basically, they've commented
8 that it's just not an investment grade type of
9 business anymore. They -- that capitalize it as
10 you will, it's just the riskiness of that
11 structure does not -- doesn't allow for investment
12 grade ratings.

13 And that may be overly blunt, but if you
14 look at the declines there's none that are in
15 there, and that's true for a lot of the merchants
16 that own the capacity that was bought in the
17 disaggregation process in California. So some of
18 those people are, you know, represented here, but
19 AS Williams, post-bankruptcy NRG, even post-
20 bankruptcy energy which is, you know, has the
21 benefit of wiping some of the slate clean,
22 Reliant, et cetera. Okay.

23 And one of the things that's been,
24 despite the fact that there's weakened credit
25 fundamentals and outlook, the high yield market

1 and the capital market dynamics have actually been
2 a very good thing for the energy markets, and for
3 the merchants, in particular.

4 There's been a bail-out by the high
5 yield market, and we've had, we've had -- that may
6 have masked some of the underlying fundamental
7 problems within the industry, because it's bought
8 time for the sector. It's, generally, people have
9 been able to get deals done and extend their,
10 their working lives by pledging assets and by --
11 and by cutting, you know, and selling some assets,
12 and that -- and the hope is, is that there'll be a
13 turn-around in the fundamental business that spark
14 spreads will, will go out, will expand again, that
15 basically fundamentals won't improve. That
16 remains to be seen, but there's probably a two- to
17 three-year window, or a one- to two-year window,
18 depending on which company you're talking about,
19 for that to start to work out for itself.

20 I guess the next thing that I'd like to
21 discuss, and I probably should move a little more
22 quickly here, is that the new -- getting stuff
23 built, how can it get built, right? If you're
24 thinking about all the reasons why California
25 needs more infrastructure, and you guys have even,

1 you know, put out, or the ISO has put out its own,
2 you know, version of -- or you guys have put out
3 your version of the ISO's summer capacity outlook,
4 and, you know, for most people looking in the
5 utility world, this is not a heartening picture to
6 have.

7 Based on, you know, those two top bars,
8 in terms of need for hydro and net imports to
9 basically get you to comfortable reserve margins,
10 and, you know, if it's a good or bad hydro year,
11 which we're, you know, not in a good hydro year
12 for the west right now. And, you know, in terms
13 of net imports, both the availability of those
14 imports, the price of those imports, and the
15 congestion of getting them in, is an issue,
16 potentially. So, you know, it's heightened here.

17 Let me just -- I guess, let's just go
18 into looking at the pricing for new projects in
19 California, or the implied project pricing for,
20 for California. It doesn't relate to the slide.
21 But the -- depending on who you speak with, there
22 is or is not a premium associated with issuing
23 debt to finance projects. I think that others may
24 go into the details of project finance later, but
25 essentially, the concept of non-recourse finance

1 and the cost of that capital basically is still
2 the preferred, you know, method for doing a lot of
3 non-IOU sponsored deals.

4 And the spread can be viewed as being
5 anywhere from there is no spread for doing a deal
6 in California from optimists and from investment
7 bankers who want to do deals, to buyers who may
8 have been stung in the past saying that even to do
9 a contracted deal in California you might need a
10 150 basis points, or one and a half percent
11 premium. If you put, you know, if you use those
12 as bookends, there probably is some premium
13 associated with California. It's not that great,
14 but again, this is for contracted assets.

15 And I think that, that -- and this gets
16 back to the strength of the off take, and that
17 spread is again related to the credit of the off
18 take utility, which is itself potentially
19 hampered. So you still do have a premium, it's
20 just related to the rating and not to the, to the
21 spread in the market, the way it's trading.

22 So getting back to the market
23 fundamentals, it would suggest that it would be a
24 good place to build, right. There's three ways
25 that you can build, basically. One would be

1 merchant, the second would be traditional project
2 financed, PPA kind of deals, and the third is a --
3 would be, you know, traditional IRU cost of
4 service. I want to just go down quickly the
5 three.

6 Let's deal first with merchant. If you
7 assume the supply/demand dynamics that you have in
8 California today, or earlier this week, you would
9 assume that a lot of the things on the face would
10 suggest this would be a place to invest. Just as
11 it would be a place to invest in New York, it's a
12 big load pocket in southern California. This is a
13 gross over-simplification, I know. But the --
14 it's when you get into the regulatory structure,
15 and a lot of other, you know, issues like siting,
16 et cetera, that things break down from a merchant
17 perspective. That's on the, that's on the market
18 structure perspective.

19 The second is on a financing
20 perspective. And nowhere in -- very few places in
21 the country will you take merchant risk. I've
22 mentioned one in New York, but there probably are
23 not many other places where you're actually going
24 to do a merchant deal, or even a quasi-merchant
25 deal. So the first reason why it's going to be

1 difficult today, in today's market, is because
2 people just don't want to take merchant risk.
3 They're not comfortable that they will be able to
4 recoup the cost of their capital, be it debt or
5 equity, based on volatile energy prices, that they
6 will not be -- and basically, it comes down to are
7 the peaks going to be shaved off, from a political
8 regulatory perspective, that I'm going to be able
9 to keep the peaks. Okay.

10 Real options theory would suggest that
11 you should be able to take all of the value of
12 that volatility, of those peaks, and internalize
13 it to the equity of the debt. But I think that
14 it's been borne out that both because maybe that
15 volatility didn't materialize as expected, or
16 because of regulatory crimping of that volatility,
17 and that you can't recoup at all. And that gets
18 back to, you know, as regulators, and now I'm
19 putting on a regulatory hat, you know, fair and
20 reasonable rates, how do you define them, does it
21 allow for that volatility, those kind of issues,
22 you know, come to the fore. But basically for
23 those reasons, financial as well as, you know,
24 market structure, it's difficult to envision
25 merchant, right.

1 So the -- I mean, it's a truism that
2 investment requirements certainty. And that, that
3 elimination of uncertainty would help obtain
4 financing. One uncertainty in California that can
5 be addressed is the Lake Leland contractual legacy
6 of the 2001 period. So I don't -- I don't know
7 all the details. If I did, I couldn't speak on
8 the merits of the cases. It is before the
9 Commission and it's likely to be before the
10 courts.

11 But one point that can be made is that
12 part of the legacy of 2001 is legal risk. And
13 legal risk translates into basically a cost of
14 finance for new projects. And obviously, a cost
15 benefit analysis needs to be done. You know, is
16 it better to get back as much as possible from the
17 past, or do you want to minimize the cost of stuff
18 in the future. But just recognize that that is a
19 calculus that, that, you know, that can be done.
20 And basically, investors have noted that if there
21 was a settlement, you know, that that would help
22 relieve some of the, the -- basically, it would
23 help begin the process of credit amnesia more
24 quickly.

25 And, you know, the concept of credit

1 amnesia is that if stuff is not continually in the
2 press, or if it's not continually going through
3 your, your legal structures, going through your
4 corporate board, going through the lenders' minds,
5 that people forget the last time, and then, you
6 know, greed takes over and people make the next
7 loan. So it, you know, it helps. Credit amnesia
8 would help California, okay. And time would help
9 California. But you need to get that credit
10 amnesia started and, you know, leaving behind the
11 past would help do that.

12 This is just investors speaking. It's
13 not -- this is where I want to be absolutely clear
14 this is not the Commission speaking. Okay?

15 (Laughter.)

16 MR. TIGER: The next point, and this is
17 also not the Commission speaking, but investors
18 view that the California ISO is very zealous in
19 its enforcement of mitigation measures. Okay.
20 This is claims by, you know, by investors and by
21 the conduits through which investment goes
22 through, which are some of the, you know, the
23 generators we see in the room here. But I'm not
24 saying that proper policing, you know, is, is not
25 necessary in competitive markets, and a lot of my

1 colleagues do that. And you need to have cops on
2 the beat, and you need to have people following
3 the rules.

4 And that's, you know, why I have a job
5 where I do, is because that was created. But
6 capital needs to think that the rules are going to
7 stay somewhat the same, at least as they project.
8 It helps to be able to figure out to make an
9 investment if you think the rules are going to
10 stay the same, and that they're going to be
11 pursued in a non-confiscatory or sort of
12 transparent way. And it's just the reputation.
13 There's a couple places in the country where
14 people think that it's zealous. California is
15 one, probably PJM is another. And that has an
16 effect on where you decide to invest. So, for
17 what it's worth.

18 The other thing is exit and mothballing,
19 and I'm not going to talk about the merits of the
20 current market design, except as it relates to
21 investment signals. And basically, what I would
22 say is that, you know, if you have a bunch of
23 incumbent generators claiming that the amp
24 procedures -- automatic mitigation procedures
25 basically keep prices low, that there's a use of

1 sort of out of sequence calls, and revocation of
2 waivers, basically, and this is getting into
3 details of must offer units, in order to depress
4 prices, that may be true or it may not be true.
5 But it doesn't help, from an investment
6 perspective, because people look at the fact
7 pattern when they -- today, to determine what they
8 think the fact pattern is going to be in the
9 future. So those kind of structural issues and,
10 you know, or, or enforcement of the structure has
11 an impact.

12 Okay. So I've been pretty dour. Maybe
13 I can talk a little bit about how we -- how
14 incentives could actually be created for
15 generation capacity to be built. I'm going to
16 consciously limit my explanation to the limited
17 universe of for profit investment by private
18 entities and infrastructure. And I'm going to
19 leave public, private, and other mechanisms aside,
20 just because I don't know as much about them and I
21 think that we should just focus on this.

22 One thing is siting. There is a
23 reputation that siting is more difficult in
24 California. I think that, that, you know, that
25 it's welcomed that the process be shortened to six

1 months from 12 months, for instance. I think it
2 may not be today as big an issue, because there's
3 a lot of legacy of plants that just haven't been
4 finished that do have sites, that have been
5 approved. And so it's, there's a backlog of stuff
6 that could actually get done. But long term, you
7 know, the ability to site, obviously, if you have
8 a developer that's thinking about various places
9 to put in a plant and they think hey, it's easier
10 to do it here than there, they therefore may have
11 a different risk hurdle, et cetera, cost of
12 capital hurdle, and they put their human capital
13 to where they think they can, you know, it can
14 bear fruit. So siting is an issue.

15 But ultimately, assuming you do get
16 projects done, the bottom line is sort of equity
17 and debt returns to investors. Right? And I want
18 to talk a little bit about those three types of,
19 of -- if you're talking about merchant, or you're
20 talking about spot market sales, you'd think that
21 in theory, a dollar earned, you know, from a
22 contract, should be equal to a dollar earned from
23 capacity payments in the spot market or from
24 energy payments in the spot market. In theory, a
25 dollar should be a dollar. But that's not how

1 it's viewed by capital.

2 I think that if you wanted to put it in
3 terms of the highest, you know, lowest risk, you'd
4 say contract is the lowest risk. Within non-
5 contracted capacity is, is more risky, but not as
6 risky as energy payments. So, you know, one --
7 and I think I've said why you wouldn't get
8 merchant done specifically, but let me just say
9 that the existence of a capacity market is useful
10 from the perspective of financing. So financiers
11 generally take more comfort from that, and so the
12 lack of a capacity market in California does make
13 it marginally more difficult to get people
14 comfortable with the structure.

15 That's just a personal opinion, as well.
16 Obviously, you know, California, as well as the
17 midwest ISO at this point, you know, which when it
18 does go to energy market, will not include that.
19 The -- all the eastern RTOs have capacity markets.
20 They're of different flavors, but, but, you know,
21 and some are more successful than others, but
22 that's just a comment.

23 So I guess the, the other thing that I
24 would -- should say is that the -- a lot of the
25 demand, you know, leaving aside demand response, a

1 lot of the need in California, at least, appears
2 to me to be for peakers. And so when you think
3 about volatility and all the stuff that I said
4 about the merchant side, it's more acute when you
5 are thinking of peakers.

6 Now, peakers could be financed, talking
7 with some investment bankers recently. You could
8 get some data on a peaker, but would only be sort
9 of 20, 25 percent of the cost, and the problem is,
10 is that if you do that, 75 percent equity, the
11 equity return is just not going to be met. So it
12 just doesn't get done. So, and I'm happy to
13 answer questions about sort of the mechanics of
14 the financing, or just the financial modeling that
15 leads into that. But it needs a lot of equity to
16 work, and that means it probably doesn't get done.

17 The last thing I guess I would say is
18 let's just go to some market design issues. And I
19 guess there's two paths you can take. One is to
20 do the full big bang total market redesign that is
21 anticipated for MDO2, or you can do incremental
22 fixes before that comes up. And from a capital
23 perspective, there is an issue with a bunch of
24 incremental changes because that means the more
25 regulatory structure is changing all the time.

1 So putting on a capital hat, you know,
2 it may provide for this summer, or it may provide
3 for next summer, or it may get you through, but it
4 also means that you'll continue to pay a slight
5 premium on the capital you're getting because of
6 the, the changes, and because people just have to
7 understand that, too. So, and then putting on a
8 regulatory hat from an MDO2 perspective, I think
9 that the Commission is weighing whether it makes
10 sense to do interim step fixes, or whether it
11 makes sense to try to not do those to incent the
12 big bang. Right? And, you know, that's before
13 the Commission, but that's a debate. And so, you
14 know, that I think is sort of a dynamic.

15 Well, I guess I'd also speak to that
16 there have been some encouraging signs from the
17 perspective of contracting. And if you go by the
18 assumption that the merchant isn't going to work,
19 that you need to have contracts, you then need to
20 ask a whole bunch of questions about who's
21 contracting, and what do those contracts entail,
22 and how are the costs of those contracts
23 allocated.

24 And it's for this reason that Governor
25 Schwarzenegger's letter to the CPUC calling for

1 implementation of AB 57, as well as President
2 Peavy's response, are likely popular with many
3 providers of capital. And that's just because
4 it's support for contracts, it's support for
5 accelerated attention to resource adequacy, and
6 that means that -- and it also speaks to
7 leadership. And so looking at that, it's easier
8 to say okay, there actually is going to be need
9 for supply, there's going to a mechanism whereby I
10 can -- I can provide that supply.

11 The other issue is the preclusion of
12 future prudency reviews, and this is where we also
13 get into the, you know, the upholding of the DWR
14 contracts which, you know, which may not have been
15 popular in all quarters, but, you know, the
16 sanctity of contract ultimately is one of the
17 underpinnings of project finance and the
18 underpinnings of infrastructure finance. And I
19 think from a perspective of long-term cost, in
20 upholding those contracts it does tend to lower
21 the cost of capital going forward, and minimizes
22 the perception of sovereign risk for California
23 that otherwise I think would've been even greater
24 had it -- had they actually been aggregated.

25 And so I think, you know, that's

1 probably enough said about that. But, you know,
2 the filed rate doctrine relates to that, and, you
3 know, I think it may not have been -- it may not
4 have been popular, but, you know, it does mean
5 that people who are looking at contracts, a few
6 FERC upheld contracts is less risky than -- than
7 California only contracts, and that may explain
8 some recent, you know, decisions on recent
9 generation.

10 Okay. One thing that I will say is, is
11 that there is an obvious tension between long term
12 contracting as well as between the next form of
13 infrastructure finance, which is the IOU cost of
14 service traditional rate base kind of way of
15 building. And that is the impact on competition.
16 And, you know, if we, if we want to have
17 infrastructure built, that's one thing. The
18 question is, is long-term, you know, if you view
19 competition as the way of getting to fair and
20 reasonable rates, you want to make sure there's
21 still competition. And there's a -- there has
22 been a bunch of disaggregation in the California
23 markets, but if you, you know, in other parts of
24 the country it's even more of an issue, but that
25 whole question of who signs the contracts or who

1 builds is, is a weighing debate that occurs within
2 the Commission.

3 And maybe I can just speak a little bit
4 about the Commission's, what the Commission is
5 looking at now in terms of competitive processes,
6 which is, you know, if, in fact, the -- if all you
7 care about is that it gets built and you don't
8 look at who builds it and the competitiveness with
9 which it's decided who builds it, then you have
10 the potential for all the problems that occurred
11 in the regulatory structure in decades past.

12 Right. And so, you know, we're going to be
13 holding a -- so one thing is, is that if you look
14 at the Mountain View decision, the expansion of,
15 of Edgar Standard Review to cost of service is a
16 significant change.

17 So, in other words, traditionally, we
18 only look at the, the process whereby a contract
19 was arrived at from the perspective of for market
20 based rates historically, and going forward the
21 concept will be to look at that also for project,
22 for PPAs that will be folded in under cost of
23 service based regulation. Okay. So that's a
24 change recently in the Commission policy.

25 We're also looking at a workshop such as

1 this, or a technical conference on competitive
2 solicitations in early June, on the 9th, that's
3 going to look at framing some of these issues for
4 a rulemaking on things related to things like
5 generation market power, transmission market
6 power, barriers to entry, and affiliated company
7 issues. So, and how those tests will be -- will
8 be used. So that's going to be, that's a, you
9 know, debate going forward in the Commission that
10 will have an impact on some of these issues.

11 And I can go into it later if people
12 have interest, but the Commission does draw a
13 distinction and has different legal authority and
14 standards over the review of the effect on
15 competition that is possible in M&A transactions,
16 or acquisitions of actual plants, which is
17 different from that which is looked at when we
18 approve or don't approve PPAs, which is more of a
19 impact on rates, and fair and reasonableness of
20 that PPA. So that's it.

21 Let me just go for a couple of minutes
22 into one of the curious things about the way that,
23 that incentives work for IOUs, that make it less
24 likely that long-term, that they would want to
25 just contract for capacity. And that is because

1 they don't generally across the country, and there
2 may be exceptions, earn an ROE on the contracts
3 that they sign. It's a pass-through, right, as it
4 was with Con Ed passing through the cost of SCS
5 Astoria. And so you get a hit from the rating
6 agencies because it's deemed to be like debt,
7 okay. You have this contractual, and then there
8 are accounting hits that occur, as well. But you
9 don't own an ROE on it, and you're not growing
10 your, your empire. Right.

11 So there is, you know, there's a lack of
12 alignment for incentives for -- whereas all of
13 those incentives exist for IOUs to do contracting
14 -- I mean, to do new build themselves. So that's
15 just something that I would note. The cost of
16 capital is probably marginally lower if the IOU
17 builds it itself, but it has implications for
18 competition, so -- and it just --

19 I want to bring up, I guess, and these
20 charts here, which maybe I'll leave with you, and
21 they're actually available on our state of the
22 markets report which was issued, I guess, in
23 January. I just wanted to highlight that, that
24 the real time market that California does when you
25 get to market structure issues, is very, has a lot

1 of the same elements that you have in the other
2 RTOs in the country, at least on the surface. But
3 if you note, on the next page it does lack day
4 ahead and capacity markets. And that, you know,
5 that has implications for the way that the markets
6 function. And then the size of the spot market is
7 also different in California versus the rest of
8 the country. So the in -- market, you know, may
9 not be as large or as liquid as, as in other parts
10 of the country.

11 I'm probably coming to the end of the
12 amount of time that I have, but maybe a couple of
13 other points, and that is that from the
14 perspective of new build, or if you think about
15 companies that build generation, another
16 incremental change that could be made that would
17 be helpful in California would be to cut back on
18 the, basically the credit issue, or the amount of
19 time that the generator needs to provide,
20 basically take on counter party risk and provide
21 working capital to the off take. Okay.

22 So in California it basically takes
23 about 90 days in the ISO settlement process, 45
24 days of which are metering, okay. And if you
25 think about it, just the -- and that compares to

1 less than 30 days in Australia, around that or a
2 little bit more in Ontario, and a little bit more
3 than that in the eastern RTOs, and there's a bit
4 of a variation. But, sorry I couldn't bring a
5 graphic, but if you look at it, it's very
6 pronounced. California is way out there. And
7 that means that power plants just don't have the
8 first cost of building it, they also have cost to
9 run them.

10 So the working capital cost can be
11 significant, as well as counter-party risk. And
12 so if you can minimize that counter-party risk,
13 minimize the amount of working capital necessary,
14 that on the margin would help. So that's
15 something that, you know, is also an improvement
16 that could be made. Or make, on renewables, the
17 -- heard from people basically that in the absence
18 of production tax credits, or even when -- if they
19 get re-upped by energy legislation, an additional
20 incentive of basically renewable energy credits to
21 make renewable energy competitive with
22 conventional generation, are helpful. Some of the
23 devil is in the details, and whether that energy
24 credit is separable from the underlying energy and
25 how the negotiation process works for the

1 valuation is, is central.

2 So if, if you can sell it independently
3 it gains more value, and if the -- as today, where
4 the IOUs are the only contractors, generally, and
5 they don't have to separate the value then energy
6 credit can be hurt a little bit. And then the
7 other elements are just the -- if you had clear
8 penalties for not meeting renewable mandates that
9 would create a floor for the value of the energy
10 credits. And the last thing would be that a
11 vintaging requirement would help for new build,
12 because if you get to, you know, count old, then
13 new may not get built.

14 I think I'll just close with a comment
15 on transmission, which is a big focus, you know,
16 of the Commission, obviously, on several fronts.
17 And it's particularly important for California,
18 which is not an energy island, right, which, you
19 know, which takes 20 percent imports, and which
20 has both intra- and inter-zonal congestion of
21 heightening magnitudes.

22 You know, transmission is only seven to
23 ten percent generally of customers' bills across
24 the country, but -- and it would seem to be a very
25 inefficient way to allow for least cost dispatch

1 to allow for excess, you know, margins that you
2 have elsewhere in the country to come, come to
3 load that's needed. But there's the panoply of
4 issues which you've all heard, that, you know,
5 prevent transmission build.

6 I would comment that funding for that is
7 not the -- is not holding things up. Okay. I
8 think that there are a panoply of people who would
9 love to put capital to work in transmission. It
10 is generally sort of like an indexed bond, because
11 it grows at the rate of inflation, or whatever the
12 growth of the transmission system is, and it's
13 relatively low risk, especially when there's no
14 liability associated with any, you know,
15 blackouts.

16 So, you know, it's more about enabling
17 capital to get to transmission new build that's
18 the important thing, and that's where it comes
19 down to regulatory and market structure, and why
20 the Commission is really supportive not only of
21 RTOs, but of the creation of independent
22 transmission companies -- one of whom you'll hear
23 from later today -- where the incentives to be
24 aligned for the new build, right. If you have the
25 IOUs who may or may not have full incentives to

1 build out the transmission system as the first
2 order person who decides whether stuff gets built
3 and planning the resource plan, et cetera, then it
4 may not happen, and we've seen the legacy of that
5 across the country in the past.

6 You know, this is a slide that Chairman
7 Wood likes to tout, which basically, based on a
8 limited history, albeit, and a small group of
9 companies, that the comparable amount of new build
10 that occurs between a stand-alone transmission
11 company versus a transmission and generation
12 company is pretty substantial. It's like almost a
13 five times more investment. And this is looking
14 at, at the Wisconsin, the Michigan utilities, as
15 well as national grid in the U.S., where the
16 incentives are aligned because, look, if I built
17 it, I get it in cost of service. And I only have
18 that business, and so I'll build. As opposed to,
19 you know, maybe it makes sense to build, maybe it
20 doesn't because what is the effect going to be on
21 the other parts of my business and on my ability
22 to maintain control over my, my service territory.

23 So, you know, I think that that's an
24 issue for unlocking transmission investment. And,
25 you know, we'll talk to -- Path 15 will be talked

1 to later today, I'm sure, so I can probably leave
2 that. And the problem with the creation of
3 independent transmission companies is generally a
4 financing and structural issue where -- which the
5 Commission is looking at but has limited ability
6 to influence. And that is related to accretion,
7 dilution, or what's the impact going to be on the
8 selling entity of a transaction. How do I replace
9 those cash flows, how do I overcome the fact that
10 it's a heavily depreciated asset.

11 And so there's a big tax hit when it's
12 sold, and there's a couple of things that may come
13 out of the tax legislation that would help with
14 that, if that tax legislation gets through. But,
15 you know, I certainly wouldn't be able to make
16 that call.

17 But, you know, I think ITCs are
18 supported. Merchant transmission is supported,
19 though the definition of merchant transmission may
20 need some review because there's a limited success
21 rate of it so far, at least in the market.

22 And the last point that I would make is
23 -- and Anne-Marie has -- and another last point,
24 sorry for that. Anne-Marie dealt with the problem
25 of price signals and demand response this morning,

1 and, and the real benefits from a whole system
2 perspective to having demand response. The one
3 thing that I would note, though, is that this is
4 where market design is really important. And when
5 the consistency of wholesale markets and retail
6 markets and their alignment is important.

7 It's not only about having the
8 technology there at the meter, at the end of the
9 line, but it's about the prices flowing through to
10 consumers not only in real time, but in real
11 location. And so ultimately, the end game of
12 having locational prices and having the ability
13 for demand for load to play in the market in the
14 same way that generation plays enhances the
15 economic value of demand response to the demand
16 responder. And that's really where you're
17 probably going to get the most. It's not--
18 because the thing is, is that as it is now in most
19 of the programs that exist for demand response, a
20 bunch of the value of demand response gets left
21 with the utility. It doesn't go to load, because
22 they have to sign up for a year or they don't get
23 a capacity payment, or the energy price is not the
24 actual energy price.

25 So that's where market design can really

1 give you a big pop, is if you can actually have
2 load see the actual price, be able to respond to
3 that price, and get paid essentially either
4 through not having to pay for power, or actually
5 getting paid some payment for not, you know, for
6 not taking it, or promising not to take it in the
7 future.

8 And the last point is basically, you
9 know, investors want either a contract today or a
10 regulatory compact. I don't think they have one
11 in California in terms of regulatory compact.
12 They are going to start to get contracts in all
13 probability.

14 But happy to answer questions, and I'll
15 probably leave my presentation which I didn't go
16 through in great detail, at least the slides, for
17 a later discussion.

18 Thanks.

19 CHAIRPERSON GEESMAN: Thank you very
20 much, Sebastian. That was a very information rich
21 presentation. I do have a couple of questions.

22 One would be in characterizing the SCS
23 Astoria project, if you would, what percentage
24 would you attribute to the merchant type aspects
25 of the contract, and what percentage to a more

1 traditional PPA contract? If, if it's a hybrid
2 type of instrument, how would you split the
3 percentages?

4 MR. TIGER: That, that's difficult to
5 do. I think that it may as much be a question of
6 perception and the sales job that's done to
7 investors as it is the reality of how much of the
8 cash flow goes through. So I don't -- it's a
9 private deal. I've had it described to me. I
10 haven't looked at the cash flows, so I can't
11 answer the question of what actual percentage is,
12 is contracted, though in part, you know, as being
13 in, you know, and you've been an investment banker
14 so you recognize that part of it is salesmanship,
15 that they have to get the ultimate investors
16 comfortable. And the credit committees within
17 those investments, investment, you know, has -- is
18 comfortable that it's enough of a contract so that
19 it can fly.

20 Now, one thing that has been working
21 through circles is the concept of the synthetic
22 contract, and that's based on load pockets, or
23 based on the fact that hey, look, I've got a
24 regulatory compact in the capacity markets in New
25 York, right, and the fact that there's an 80

1 percent in city requirement, so it's locational.

2 And you have, you know, little risk of future
3 entry. So you can sort of project forward those
4 capacity energy payments, and that's why you have
5 probably less of a, a hit on the -- or haircut
6 taken on the merchant portion in that particular
7 case.

8 I do know that most of the debt will not
9 -- the other thing I should mention is, is that
10 it's gotten to the point where now deals are
11 tranced more, so there is a, basically a risky
12 portion and a less risky portion. And a lot of
13 the less risky portion, right, will have been paid
14 off by the end of the contract. But the, almost
15 all of the risky portion, which is getting a
16 higher yield, is exposed to that merchant tail
17 period. And that's about segmenting the market,
18 and there are people who are willing to take, you
19 know, risk for a price. It's just a question of
20 having it so -- so that it works for end
21 consumers.

22 CHAIRPERSON GEESMAN: And what type of
23 investors are those?

24 MR. TIGER: There is a new term for it,
25 which is basically the term, the institutional

1 loan market. And that is a fancy way of probably
2 talking about hedge funds, talking about basically
3 those who can buy junk bond funds and some of the
4 dedicated power funds, or, you know, energy funds.
5 And they're -- partly is has, it's a supply/demand
6 for capital issue, in that today, or at least up
7 until very recently, where you're now starting to
8 see, you know, interest rate increases, people
9 were chasing yield. And they may have been doing
10 it rationally or they may have been doing it
11 irrationally, but they were chasing yield. And
12 that was actually a boon to the power sector,
13 specifically. So.

14 CHAIRPERSON GEESMAN: On the capacity
15 market question, I guess I respect the fact you've
16 only been there a year so I'm not going to hold
17 you accountable for, for what went on previously.
18 I do think, though, that, you know, FERC made some
19 mistakes in responding to MDO2. It's two years
20 since the ISO submitted a proposal for a capacity
21 market. I don't know that it was a perfect
22 proposal, but I will tell you it was a big
23 improvement over what we've had the last two
24 years. And I think the notion of holding off on
25 incremental improvements in favor of inducing the

1 big bang, probably not the -- the world's greatest
2 strategy, but different people can differ.

3 MR. TIGER: Yeah, I -- point, point well
4 taken. And, you know, I'm not involved for full
5 disclosure, you know, in that process, other than
6 I get asked questions about about some
7 implications for it, or of it. But, yeah, you
8 know, personal opinion, right, you know, depending
9 on your timeframe you don't want to have it, you
10 know, hold out for it and then things, other
11 things come up in the interim that make it
12 impossible to ever do. You know. But that's, you
13 know, that's a personal opinion.

14 CHAIRPERSON GEESMAN: Well, my friend,
15 Mr. Desmond, shortly before he was appointed,
16 circulated a proposal for a capacity market in
17 California. And I would encourage FERC to give
18 serious attention to that. I, I think in general,
19 and you don't hear this from many California
20 regulators, but I think FERC needs to hold their
21 feet a little closer to the fire on things like
22 capacity markets. I think that there'd be a lot,
23 a lot more progress than a couple of your
24 commissioners might otherwise expect if you did
25 hold their feet closer to the fire.

1 MR. TIGER: Okay. Thanks.

2 CHAIRPERSON GEESMAN: Thanks.

3 MS. BORBELY-BARTIS: Do we have any
4 additional questions or comments from the
5 audience? Yes, please go ahead.

6 MS. TRELEVEN: Should I come up there?

7 MS. BORBELY-BARTIS: Yes, go ahead.

8 MS. TRELEVEN: Hi. I'm Kathy Treleven,
9 from the Governmental Affairs part of Pacific Gas
10 and Electric.

11 And I wondered if you could do a little
12 bit of extrapolation on the concept you mentioned
13 of the attribution of debt equivalence. Right now
14 it's just sort of obscure today between us and our
15 financial regulators. But in the long run, some
16 have said that as we get to a point where we're
17 doing lots of contracting, we could see that
18 phenomenon slipping us back into a below Triple B
19 status. And perhaps as -- perhaps we could get,
20 get the investors to believe in us a little bit
21 more and do some of the remediation you're talking
22 about.

23 But if you have any comments you could
24 offer?

25 MR. TIGER: I think -- well, I would say

1 that it's a couple of things. One, it's the
2 actual accounting rules of how it's dealt with,
3 and I think that's a FASB issue, and that, you
4 know, has its own process. But I think it's also,
5 frankly, an issue of rating agency education. And
6 the rating agencies understandably, given what
7 they went through in the energy crisis, non-
8 California specific, but just across the country,
9 may be a little bit shy about appearing to be on
10 the edge.

11 And so, you know, if you ascribe it as
12 debt you don't give it any asset, you know,
13 qualification, that, you know, ultimately, if you
14 do a lot of contracts, I follow your logic. I
15 think time may help, and I think a little bit of
16 rating agency education would help. But recognize
17 that, you know, it's -- well, I'll leave it at
18 that.

19 MS. TRELEVEN: Thanks. We are trying.
20 We see them as a little conservative.

21 MR. HUYCK: Could I -- can I make an
22 additional comment. That same issue came up, as
23 you recall, in the mid-eighties, so this, this
24 issue has been around for almost 20 years. And
25 the question was, when the standard offers were

1 being assigned right and left, and they got larger
2 and they had these big projects, lower San
3 Quentin, San Joaquin, et cetera, questions came up
4 around the county, and the rating agencies were
5 trying to come to grips with that issue then. At
6 which point you have a supplemental coverage
7 calculation, or some kind of supplemental
8 attribution of that kind of contractual
9 obligation.

10 And a lot of that folded back in on the
11 level of confidence that the rating agencies had
12 that those costs were actually going to be flowed
13 through, and there would be some kind of --
14 because those were, you know, three cylinder --
15 and they couldn't be disallowed, technically.

16 The question is, is the Commission going
17 to ding you, very quietly and without attribution,
18 someplace else, which commissions have the
19 capacity to do very easily. And so that was, it
20 was very hard to quantify that. But the issue has
21 always been us and will always be with us, and I
22 think it depends in large measure on the level of
23 confidence in the flow-through mechanisms that
24 exist at the federal and state level.

25 CHAIRPERSON GEESMAN: Joe?

1 MR. DESMOND: Make sure this is on.
2 Just a couple quick questions for Sebastian.

3 First, let me say thank you,
4 Commissioner Geesman, for mentioning the capacity.
5 I'm actually quite optimistic that, in fact, the
6 notion of capacity markets were contemplated in
7 the 122 decision that came out of the CPUC, and
8 that you're going to see continued movement in the
9 development of a capacity market here in
10 California, hopefully with even elements that are
11 tradeable in secondary markets to allow for risk
12 management through normal load migration that
13 could occur.

14 The question I have is twofold. One,
15 has FERC done any estimates on the added cost
16 associated with the, the time delay for
17 settlements for the California market, looking at
18 30 versus 90 days. I mean, and the reason I say
19 that is when you're talking about having to invest
20 significant dollars in settlement systems and the
21 question is how much are we spending, where's the
22 benefit, certainly you want to factor into that
23 equation the, the expected return. And I don't
24 know if associated with the cost or the credit-
25 worthiness concerns. It's certainly a figure I'd

1 like to see. If you don't have it, that's okay,
2 but it's something I'd like to see.

3 And then the second is whether or not
4 you've given any thoughts to how do you overcome
5 what you described as a long-term bias to build on
6 the part of investor owned utility, given that
7 there's no return in equity associated with a PPA,
8 and what's the appropriate incentive there that
9 you have to, to keep them interested in the game.

10 MR. TIGER: To the, to the cost benefit
11 of the settlement, I'm not aware of one having
12 been done. There are probably vendors who -- and
13 I'll look into it, and I think it is definitely a
14 good question and a reasonable, reasonable
15 threshold that you want to make sure that the
16 costs do not overly, you know, outweigh the
17 benefits.

18 I think the other point to make there,
19 though, is that you wouldn't, if you were doing
20 those types of changes, you could probably get
21 some of the other types of changes involved at the
22 same time, so if you, you know, were able to
23 facilitate demand response at the same time with
24 some of the same kind of investments, and I'm not
25 an expert in this, this is just, you know -- you

1 know, you might be able to pool in some more
2 benefits.

3 MR. DESMOND: Well, for what it's worth,
4 I do know that as people are talking about
5 capacity markets, they're explicitly considering
6 the ability for demand response to play on an
7 equal level and be eligible, given certification
8 criteria and deliverability standards, that it
9 participates and competes for those capacity
10 payments. So I, I think that's sort of a given in
11 California, and it's clearly, it's articulated in
12 the decisions that have come out.

13 But anyway, the second question.

14 MR. TIGER: Yeah. And then to that, I
15 mean, there's the incentives and then there's also
16 the disincentives. So I think that it's, you
17 know, there is a reliability way that that could
18 be done. I mean, to be frank, in terms of, of
19 contracting, right. And if you, you know, if you
20 -- if you say we need to have this level of
21 resource adequacy, it may not ultimately, you
22 know, then it's a process of negotiation, et
23 cetera. But, I mean, that's one element. And
24 that can be, you know, can be explored.

25 As to how you square the circle of, of

1 creating incentives where naturally they wouldn't
2 necessarily be there, you know, maybe the one
3 place to -- you might be able to look and -- is if
4 you could create some type of PBR, performance-
5 based way of looking at how those contracts are
6 done so that it's not just plain, you know, a
7 pass-through, but there's some type of hedging
8 treatment. That might be a way, but I, I don't
9 know the details. But it's also a good question.

10 MR. DESMOND: Okay. Thank you.

11 MS. BORBELY-BARTIS: Any additional
12 questions or comments from the audience at this
13 point?

14 Okay. Well, thank you so much for that.
15 I, I must admit I was -- excuse me, I was thrilled
16 when I first heard that Sebastian Tiger had been
17 hired at FERC as an investment banker. I thought
18 it was important to sort of bring that perspective
19 into the regulatory decision-making process, so
20 I'm glad that he's here with us today.

21 Our next speaker is a dear friend of
22 mine who has been actually in the energy business
23 since 1976, so he has a long, sort of grand
24 history in all of this, and will give some great
25 insight from that perspective. He has been an

1 investment banker for energy -- for energy project
2 finance for decades now, and has also managed a
3 fund for the Boilermaker Union, no less, that
4 invested in power projects and power management,
5 and so I think that's interesting.

6 He was also chairman of a co-gen
7 development company in New England, and I think I
8 will leave it at that at this point. And please
9 go ahead and welcome Philip Huyck.

10 MR. HUYCK: Thank you, Anne-Marie. It's
11 -- I'm going to sit here. Those of you that are
12 right in my line of sight, or semi in my line of
13 sight, will see only the top of my head, which is
14 actually my best feature.

15 (Laughter.)

16 MR. HUYCK: Several years ago when my
17 son was in divinity school, he's now an Episcopal
18 priest, we drove across country from Chicago to
19 San Francisco, because he was in a tight timeframe
20 from his last exam and his internship at a
21 hospital in San Francisco, in the chaplaincy
22 there. And it was, he described that as -- those
23 of you from, that are refugees from the sixties,
24 remember Robert Persig's book, Zen and the Art of
25 Motorcycle Maintenance. He described this as

1 Episcopalianism and the art of Volvo maintenance.

2 (Laughter.)

3 MR. HUYCK: And as we got, as we left
4 Salt Lake City on our penultimate day's journey
5 and we're headed toward Reno across that great
6 desert waste, I explained to him that as an
7 Episcopalian, he needed to understand capital
8 markets because while a Baptist or Methodist might
9 get by without a knowledge of finance, an
10 Episcopalian, particularly an Episcopal priest,
11 and dealing with his constituency, had to be, had
12 to understand the difference between debt and
13 equity and public and private markets. And for 14
14 hours he recalls being instructed about the
15 structure of the capital markets, domestic and
16 international. And he said had we been going less
17 than 70 miles an hour he would have jumped out.

18 (Laughter.)

19 MR. HUYCK: So I, luckily, we're not
20 going 70 miles an hour, and if you feel like
21 jumping out for any number of reasons, you should
22 feel free to do that.

23 It's -- these are, as you know, and many
24 of you have lived with for many years, these are
25 very complex and sophisticated issues. I thought

1 maybe extraordinarily simple in one way, and
2 hopefully leave open for dialogue later some of
3 the complexities.

4 Capital markets are both extraordinarily
5 sophisticated and unbelievably primitive. And if
6 any of you think that they're, in terms of a brain
7 metaphor, that these are neocortical, they're not.
8 They're very limbic. This is brain stem type of
9 stuff, often. And there's a lot of flight or
10 fight associated with the response characteristics
11 of it.

12 And the question that's always asked of
13 anybody who has been -- and I'm a recovering
14 investment banker, I'm not currently an investment
15 banker --

16 (Laughter.)

17 MR. HUYCK: -- the question that's
18 always asked is, is the capital going to be
19 available to finance our -- fill in the blank, you
20 know, our energy needs, whatever, infrastructure
21 requirements. And the answer to that is almost
22 always yes. The question is at what level, and
23 under what terms and conditions. And there is no
24 doubt that the experience in the United States,
25 internationally, and in California has created a

1 lot of scar tissue on a number of people, many of
2 whom have now left the business.

3 See, the nice thing about big mistakes
4 that get made is the people that make them get
5 fired. And their successors are a blank slate.
6 So you have a chance, because of the mortality
7 rate of the prior bankers, institutional lenders,
8 et cetera, who made these decisions, you have a
9 chance to go back and actually reopen the
10 discussion without paying as high a penalty as you
11 might otherwise think. That's a very superficial
12 summary.

13 Let me try to -- let me raise a
14 question, actually, and you can answer this
15 silently. So much of your response to policy
16 issues that relate to energy revolves around a
17 fundamental, almost theological question, is
18 electricity a commodity or is it a social good.
19 If it's a commodity, you're a big fan of
20 deregulation in the markets, and you like to see
21 markets actively participating in the allocation
22 of capital. If it's a social good, you tend to
23 take a little more conservative view of what your
24 responsibility is to create and deliver that good.

25 And so often people have an implicit

1 mindset, an implicit underlying religious
2 orientation. It's never articulated, but it
3 really does affect the nature and the quality of
4 your response. So keep that point in mind and ask
5 yourself the question, when you hear somebody
6 suggesting that we need this kind of a policy, ask
7 yourself the question, if it offends you is it
8 because I have a different frame of reference
9 about the nature of this particular asset, and its
10 value in a societal context.

11 Let me, let me remind you, recall for
12 you a cliché which everybody now knows, and it's
13 quoted frequently, that those who cannot remember
14 the past are condemned to repeat it. And what I'd
15 like to do is to try to give you not specific
16 answers to will this policy work or that policy
17 work. What I'd like to do is to give you a bit of
18 an analytical matrix, to analyze the elements of
19 the capital markets, what those are. For many of
20 you, this will seem a little simple, but it's
21 always good to go back to basics and keep these in
22 mind. Then match that with the characteristics
23 that are necessary, the skill sets that are
24 necessary for the effective development of an
25 energy program of whatever stripe.

1 And lastly, to run that against the last
2 four or five decades of history, and recall for
3 you, because I, maybe my only virtue here is that
4 I lived through that process, recall for you what
5 we were thinking then, what we hoped to achieve,
6 what we did, and why it didn't work out quite the
7 way we thought it did, and maybe project forward a
8 little bit as some of these issues are raised
9 again. And there is, I think, a limited value to
10 that process.

11 First of all, let me review for you the
12 basic vocabulary in capital markets. There's
13 equity, and there's debt. And now, if you were my
14 son, you'd be someplace in a Nevada desert and
15 you'd be, your hand would be on the handle.

16 The advantages of equity are its
17 flexibility, its willingness to take greater risk
18 for greater potential return. The disadvantage
19 fundamentally is its higher cost capital. And in
20 a public format, particularly, can be a little
21 unsatisfactorily volatile. There are private, and
22 we can address that a little more later, but let
23 me remind you the vocabulary that's used, and that
24 is PE ratios, and you're all familiar with those,
25 and multiples. And if your -- if your multiple is

1 ten, in other words, every dollar gives you ten
2 times that in market value, your stock price, and
3 somebody else who's in an similar business has a
4 multiple of 30, every dollar of income, and that
5 was exactly what characterized the markets, and
6 I'll get to in a little bit, mid to late eighties
7 and early nineties, we had a massive case of
8 multiple envy.

9 Utilities were sitting there saying what
10 am I, chopped liver? I've got, you know, these
11 wonderful unregulated earnings that I've been
12 generating that represent just portion, and yet
13 I'm still trading at a utility multiple. Those
14 were not utilities with the same earnings in the
15 same business, the same activity, who were getting
16 three times the market value for that. Which led
17 to a lot of spin-offs, getting rid of, getting it
18 out front of the utility, or the utilities saying
19 I want to be in that business. I want to be out
20 of the utility business. I can't do it in my
21 service territory, so I'll go next door and do it.

22 And you got this wonderful daisy chain
23 of people running around and jumping in somebody
24 else's service territory to do the business they
25 felt they weren't justifiably compensated for in

1 their own. Until, of course, it all went sour.

2 So let me, let me finish off this
3 description of the characteristics of a capital
4 market. I'll try to do this in a relatively crisp
5 basis.

6 There are private equity venture funds,
7 et cetera, LBO funds. I mean, a good example of
8 that recently is the Texas Pacific Group making an
9 offer for PGE. To me, the most astonishingly
10 incompatible partners in an activity are a
11 leverage buy-out firm and a utility. It seems to
12 me that there is something intrinsically
13 inconsistent with somebody who's looking for high
14 IRR and a quick flip buying an asset that's
15 regulated on a cost of service basis.

16 Now, we can get back to that later, but
17 it raises some very interesting questions about
18 the legitimacy and the intelligence of using that
19 particular type of financial structure for that
20 particular activity. There are the publicly
21 traded funds, which we talked a little bit.
22 They're strategic funds, companies that are
23 putting equity into other markets based on their
24 own capital and allocating in that context.

25 And the role, of course, of equity is to

1 make the debt comfortable, because everybody's
2 goal is to get to the debt. Equity is only useful
3 as an owner, you only put in as much equity
4 capital as it takes to get the debt that you need,
5 because of the powerful impact on your return of
6 leverage.

7 The debt markets are really what
8 characterize, or make the capital markets in this
9 country. Our capacity to finance, whether it's
10 housing or projects, to finance over a period of
11 30 years at a fixed rate is what drives this
12 economy. It's not the equity; it's the debt. And
13 if you go to other countries and look at the
14 impoverished debt markets in those countries, you
15 realize one of the major factors holding them back
16 in terms of their economic development is the
17 inability to access long-term fixed rate capital.
18 They come here for it, and they're trying to
19 develop indigenous markets.

20 But you have to respect and have
21 enormous affection for, no matter what your role
22 is in this process, those long-term fixed rate
23 markets. The capital cost is lower, the interest
24 is deductible, and until recently, dividends were
25 heavily penalized. And there is that wonderful

1 long-term tenure. The higher the capital cost of
2 an asset, most utility assets is historically and
3 maybe potentially renewables, and coal, are very
4 high cost, low operating cost assets. The nature
5 of the capital that's associated with those and
6 access to low cost long-term debt is critical to
7 the viability of those kinds of high capital cost
8 assets.

9 The disadvantages of debt is it's
10 inflexible and it's risk averse. All that debt
11 can ever do is get back its principal and stated
12 interest. Unless, as we'll talk about a little
13 later, you begin to move into a hybrid mode.
14 There are hybrids. There's mezzanine -- when I
15 ran the boilermaker cogeneration fund for the
16 Boilermaker Union, and believe me, at the
17 quarterly meetings you did not want to show up
18 with a loss, had nothing to do with your
19 compensation, had everything to do with your level
20 of anxiety because the ten representatives of the
21 unions that were there sitting with the ten
22 representatives of management looked formidable.
23 They all weighed about 300 pounds, and had biceps
24 that were larger than my head. You always wanted
25 to have a positive return. It was a very

1 motivated -- but your income was irrelevant, you
2 were very motivated.

3 There is mezzanine type of financing,
4 you're all familiar with that. We would often
5 take subordinated debt positions, charge a base
6 interest in a participating coupon. And that kind
7 of hybrid waystation between debt and equity can
8 be an extraordinarily useful and powerful tool,
9 and something that might play a more important
10 role than might have been earlier considered in
11 the California markets as they try to find
12 mechanisms to motivate investment. Because as far
13 as the senior lenders are concerned, aside from
14 some technical issues, that's equity. And because
15 it's subordinated, although there are structural
16 subordinate issues, highly technical subordination
17 issues, it's, they view that as providing
18 additional coverage for them.

19 The major developments in the last 20
20 years in the capital markets have been, I think,
21 relatively, a relatively short list. One is the
22 high yield market, where debt replaced equity in
23 many cases, and often intelligently. And
24 Sebastian alluded to earlier one of the things
25 that's bailed out a lot of these very fragile

1 merchant companies is people looking for yield.
2 Maybe, to paraphrase Kenny Rogers, looking for
3 yield in all the wrong places. There is, you
4 know, if you read The Economist, which is my,
5 almost my sole source of information these days,
6 if you read The Economist, they are preoccupied
7 with the fact that people have been taking
8 disproportionate risks and not getting a
9 legitimate risk adjusted return. And there is
10 some potential pain on the horizon for people that
11 have gambled and may lose, in that context.
12 You're talking to somebody who bought preferred,
13 so I know what that's all about.

14 (Laughter.)

15 MR. HUYCK: But the high yield market.
16 And the second has been securitization. The
17 ability to take a number of very small
18 transactions and aggregate them and tranche them
19 in a way that allows small transactions, like
20 mortgages and the mortgage bank security market,
21 small, you know, balances in credit coupons, and
22 in credit cards, to securitize that. One of the,
23 one of the weaknesses of a lot of the technologies
24 that we all have some affection for is they're
25 small, they're individual whether it's renewables

1 or other kinds of things. It's possible that one
2 should be thinking about the securitization in
3 some form or fashion of those kinds of
4 technologies, and that potential, I think is
5 there.

6 The fixed income players are the banks,
7 who do not like to lend. Most of them will tell
8 you that they want to get in and get out as fast
9 as they can, the major reason being they have
10 capital requirements, and anything that has any
11 kind of decent credit quality associated with it
12 still requires an allocation of capital that makes
13 it very painful for them. So the banks, which
14 traditionally were, and in many countries in
15 Europe still are the sources of long-term capital
16 or medium term-capital, do not want to be in the
17 lending business. They'll do it in order to get
18 the placement; they'll flip it as fast as they
19 can.

20 Unfortunately, many of them are now
21 holding billions of dollars' worth of merchant
22 plant assets, and particularly the European banks
23 who were late to the game and were seduced into
24 the process against, perhaps, their better
25 judgment. But they're looking at billions of

1 dollars of assets and the, the PG&E assets just
2 are -- have been or just about been handed over to
3 self gen and the other -- there are 17 banks that
4 participated in that. That was a billion dollar
5 equity write-off and a more than billion dollar
6 debt obligation, and they're sitting on assets
7 they have no idea what to do with. And they're
8 waiting for the market to bail them out, and they
9 could be waiting for Godot.

10 The banks who were reluctant and are now
11 even more reluctant, particularly European banks
12 who are in great pain, the institutional markets,
13 as we call them, which are the, the pension funds
14 and insurance companies and others who are looking
15 to rating, the rating agencies to get that
16 investment grade requirement so that they're then
17 prepared to invest and they're always, they're
18 always looking to fill up their portfolios to
19 match fund their long-term obligations, and
20 actuarially looking and represent very attractive
21 candidates if, if you can get to those markets.
22 But they are mediated by the investment bankers
23 who do the deals, and the rating agencies who
24 provide the ratings. And that, that discussion is
25 usually between the investment bankers and the

1 rating agencies to try to get that triple B minus
2 level rating so that they're investment grade so
3 they can sell to all these, from a legal
4 standpoint, in terms of legal investment in
5 different states they can sell to those
6 institutions.

7 Their mindset, of course, as I indicated
8 earlier, is all downside protection; there's no
9 upside unless they happen to play this little
10 funny mezzanine market, and very few of them do.
11 They're looking for their default remedies, they
12 have long memories for abuse, and they're very
13 quiet except in distress situations. In 1981 and
14 '82, for my sins I helped design the standard
15 offers, standard offers in California in order to
16 encourage investment in renewables. In 1995 I
17 represented the fixed income community in the full
18 panel hearings on deregulation in the state of
19 California. My placement was impeccable, I
20 testified right after Jeff Skilling, of Enron.

21 (Laughter.)

22 MR. HUYCK: And, and I pled for two
23 things. I had been pleading earlier for
24 performance based ratemaking and not massive
25 deregulation, and I said please do not abuse the

1 debt markets. They are the, really the instrument
2 of your salvation in this state and elsewhere.
3 There was serious conversation then about
4 aggregating the long-term power purchase
5 agreements that had been entered into a decade
6 earlier. I only had a hundred million dollars of
7 Boilermaker money outstanding, but I was genuinely
8 worried that that discussion would be taken
9 seriously.

10 The fact that it was a topic on the
11 table was a very chilling thought, and that, that
12 response and reaction comes up again and again.
13 At any given point in time a long-term contract is
14 going to be higher than the spot market, and it
15 will elicit cries from people who feel that
16 somehow something nefarious is taking place. And
17 I said then, and I say now, that complaining about
18 having a long-term contract that's higher than the
19 current spot market -- by the way, you never hear
20 those complaints from the spot markets above the
21 long-term price, there's stunning silence, nobody
22 says, there are no atta-boys when that happens --
23 I said it's a lot like buying term life insurance
24 and not dying, and complaining. There are reasons
25 why you protect yourself and pay a price for that

1 protection. And to ignore that I think is a
2 fundamental policy mistake.

3 Let me review for you briefly, having
4 done that, that very superficial overview of the
5 capital markets, the skill sets -- excuse me --
6 that are relevant to, to a viable energy market.
7 They are the permitting, the construction, the
8 operation, the fuel procurement, the marketing,
9 and the customer service. All of which once
10 resided in the investor-owned utilities.

11 Can I borrow one of those? I'm having a
12 liquidity crisis. Somehow when you reach past 60
13 and a lovely young woman takes the top off the
14 water bottle for you, you feel that you've crossed
15 over a line.

16 (Laughter.)

17 MR. HUYCK: These once resided in the
18 investor-owned utilities. And they still have
19 those skill sets, although I think in many ways
20 very degraded, because in many cases they've been
21 out of that business for a long time. They also
22 reside in the independent power producers who have
23 acquired those skills in the last 10 or 15 years.
24 They also exist, to a limited extent, in
25 municipals and co-ops, the other participants in

1 the electric energy markets, and they're also
2 still in the service contractors, the suppliers,
3 even the utilities and the IPPs and the munis
4 contract for a lot of this activity, whether
5 they're environmental consultants, whether they're
6 EPC contractors, whether they're operators, fuel
7 supply, those skills are out there on a stand-
8 alone basis and accessible to any participant in
9 these markets.

10 And that's something to keep in mind
11 because as we get to the question of who do you
12 want -- whom do you want, as my wife would point
13 out to me -- to be carrying the burden for
14 executing a good energy program, you have to ask
15 yourself the question where is that skill set, and
16 if I can leverage that with the right capital how
17 can I allocate the value in this process
18 intelligently.

19 Let me go briefly through the history of
20 our collective efforts over the last several
21 decades and my term in this business.

22 There were the sixties, which was the
23 traditional utility period, and we had the usual
24 rate case arguments. You remember those, the test
25 years, all those kind of traditional, what seem to

1 be now very innocent, questions, but it generated
2 a lot of energy. Coal versus nuclear. There was
3 a preference, clearly, for high capital cost, low
4 operating cost projects because you earned on the
5 assets and you didn't earn on the fuel. The same
6 issue that we have got now, there was a preference
7 for over-building. What was known, probably got
8 some economists surprise of some kind, as the
9 Average Johnson Effect, a phrase you probably
10 haven't heard for a long time, and a tendency to
11 have very high reserve margins.

12 There was a tendency to try to build
13 nuclear or other high capital cost plants, and
14 there was very little interest in innovation. The
15 oil shocks came in the seventies, and PURPA in
16 '78, and PURPA was the, the legislative
17 recognition that nobody liked the utilities and
18 what they were doing. First of all, they wouldn't
19 innovate; second of all, they were monopsonies.
20 Cogeneration, which was suddenly a very fancy word
21 -- I remember Jerry Brown's button at one of the
22 conferences that I attended said once is not
23 enough; cogenerate, with all the subtle
24 implications of that -- the notion that somehow
25 fuel was being wasted because of the unwillingness

1 of the utilities to accommodate cogeneration
2 facilities who could use the low pressure, low
3 temperature steam efficiently and in an optimum
4 balance produce excess electricity actually got
5 some people a little frustrated.

6 And so PURPA came along and utilities
7 were required to buy the output from so-called
8 QFs, the renewables and the cogeneration
9 facilities, at their, what came to be known as
10 avoided cost. They were required to sign
11 contracts. The new participants were deregulated
12 from rate regulation, and they had, another part
13 of that language, extra tax incentives, and to top
14 it all off, utilities were refused under PIFUA,
15 the Power Plant Industrial Fuel Use Act, which was
16 one of five parts of that energy security
17 legislation, were denied the opportunity to use
18 natural gas as boiler fuel.

19 And so basically, we took away a lot of
20 the chips from the table and hand-fed them into a
21 completely inchoate but to be defined constituency
22 that emerged as the IPPs, the AES's, the Calpines,
23 the unregulated subsidiaries of a lot of the
24 utilities who wanted some of that good stuff. So
25 the eighties were the rise of the IPPs, contract

1 based financing. You had a contract, a long-term
2 power purchase agreement. You could finance off
3 that, you could finance at 100 percent, you could
4 finance at 105 percent, 110 percent.

5 I was seduced by the dark side. I had a
6 cogeneration development company, I did this for a
7 while. And it was, it was very satisfying,
8 temporarily, until the New England economy
9 collapsed and left me holding several projects
10 that didn't have long-term contracts. But that,
11 combined with the, the advent of the combined
12 cycle power plant, which nobody anticipated in
13 that year. We never, when PURPA was passed,
14 nobody thought about large cogen. It was all
15 small cogen, backing up to the plant and getting
16 five or ten megawatts in the optimum balancing.

17 And it was only, as I recall, when the
18 notion of steam flooding in the lower San Joaquin
19 gave rise to the 300 megawatt-plus combined --
20 cogeneration plants that people suddenly awakened
21 to the fact that you could have very large
22 cogeneration facilities with very large steam
23 users. That evolved eventually into combined
24 cycle later, as we moved into the nineties.

25 That was a wonderful time for the Roger

1 Sants and the others in the world who could
2 manufacture from a regulatory structure that they
3 knew better than most, a whole new industry.
4 Billionaires were made, people owned NFL football
5 teams off the proceeds of their profits from that
6 activity. Whether or not you think that's a
7 socially useful deployment of the ratepayer prices
8 that were charged is another social question.
9 But, in fact, you did get a whole new constituency
10 that came into the market, and they were major
11 players.

12 By the nineties, and remember, in 1989
13 with the collapse of the Soviet Union and the fall
14 of the Berlin Wall -- which was particularly
15 poignant for me because I was there as a graduate
16 student and a stringer for Time Magazine when the
17 wall was built in 1961 -- when the Berlin Wall
18 came down, it was the collapse of the command and
19 control economy and mindset. Everything was in
20 deregulation. Everything was in privatization.
21 And we took this eighties model from the energy
22 scenario and we exported it with a vengeance. We
23 took it to Argentina, we took it to Indonesia, we
24 took it to Australia. I sat in Bogota, Colombia.
25 I sat in Melbourne, and with true fervor

1 participated in the privatization of billions of
2 dollars of generation assets. That was the new
3 paradigm. That was the new model.

4 In the nineties came the merchant
5 plants. Starting in '92, everybody awakened to
6 the fact that you didn't have to leave all the
7 upside in the hands of the IPPs. The ratepayers
8 were entitled to a little piece of this somehow,
9 and why didn't we competitively bid for -- extract
10 a competitive bidding, or impose a competitive
11 bidding process on this. The result of that was
12 you had initially long-term contracts that were
13 bid, and ultimately it slid into the so-called
14 merchant plants where people were now looking to
15 build a plant and persuaded institutional lenders
16 and other investors to invest on the basis of the
17 forward curve, i.e., projections.

18 You remember, you remember Mark Twain's
19 famous line that there are lies, damned lies, in
20 statistics? There were lies, damned lies, in
21 projections. Billions of dollars were deployed in
22 these merchant plants which now, half-completed or
23 completed, litter the landscape in a lot of
24 states. I, for expiation, I have to say that I
25 developed one in Indiana with some partners, sold

1 it to a utility. They got halfway through the
2 construction, were effectively bankrupt and
3 abandoned it, and took a new plant and sold that
4 for scrap. And I think that is illustrative of
5 what has happened in this industry.

6 Now, we ended up, by the end of the
7 nineties we got to, we've moved from contracted to
8 merchant to virtual utilities. And another
9 context recently, in the Enron paradigm, I said
10 the interesting thing about virtual is if you take
11 the virtue out you can go straight to hell.

12 (Laughter.)

13 MR. HUYCK: By the end of that decade
14 and by the, by the start of what we call the
15 aughts, I think all the reality had set in. You
16 had abandoned or semi-abandoned plants, you had
17 the pain in California, the triumphalism had
18 ended. The, the privatization trend had either
19 ceased or reversed itself in a lot of, a lot of
20 foreign countries. And the whole business model
21 of the trader as the, as the -- at the top of the
22 food chain had evaporated.

23 A lot of that came from trying to prop
24 up the multiple that I addressed earlier. Once
25 you start feeding a multiple, once you have a 30

1 or 40 times multiple, quarterly earnings become
2 critical to you. And you go from managing
3 earnings to manipulating, to manufacturing them,
4 and you never know when you cross the line. And I
5 think that's what happened to a lot of people,
6 unfortunately. I don't think they set out to do
7 what they did; it just happened because of the
8 enormous pressure from feeding a multiple.

9 So that's, those were the mindsets,
10 that's what we hoped to achieve. Looking at the
11 current debate, the landscape in California
12 appears to present you with two basic options,
13 back to the sixties or back to the eighties. And
14 that is it's the IOUs in their newfound enthusiasm
15 for a cost of return, because as they used to say,
16 halitosis is better than no breath at all --

17 (Laughter.)

18 MR. HUYCK: -- and regulated returns
19 looked pretty slick compared to massive losses.
20 And everybody has abandoned their religion of
21 deregulation and they're back to I was always an
22 IOU, I was just kidding about all that other
23 stuff.

24 And the IPPs, who are saying look, we
25 have the capacity, and we have the expertise to

1 permit and build and operate the plants that you
2 need on a timely basis. And I'm going to leave
3 aside the question of who collects, who pays for
4 the prior mistakes, which is always a painful
5 process. But let me remind you, to reinforce
6 Sebastian's point, that when this country started
7 there was a massive debate over paying the debt.
8 Hamilton and Jefferson were at each other's
9 throats. Alexander Hamilton insisted that the
10 bonds that had been issued by the United States of
11 America which had been sold to speculators were no
12 longer held by the original investors, sold to
13 those ugly Wall Street speculators, that those
14 bonds be paid in full. Because he said
15 maintaining, establishing and maintaining the
16 credit capacity of this nation is critical to our
17 long-term viability. Jefferson, of course, if you
18 read the history of this, saw banks and cities as
19 the bane of the existence of the yeoman farmer.
20 Hamilton won, and the United States became what it
21 became, in no small measure, because Hamilton did
22 win that fight.

23 So that, to reinforce that the sanctity
24 of contract, and the sanctity of debt obligations
25 is something that argument has been with us a long

1 time. We fought that at the start of this
2 country; it's still a debate. But it's important
3 to remember how successful that painful process
4 has been in maintaining the credit called capital
5 markets.

6 Where we go going forward, having set
7 that framework, I want to invite you to think
8 about that matrix. Where those markets are, who,
9 who got skills, what those skills are, and not
10 assume that the only significant players are the
11 IOUs and the IPPs. If you stand back and think
12 about this, there may be other structures.

13 Professor Cichetti has suggested one which is a
14 public/private cooperative venture of some kind.

15 The notion of that is like, kind of like
16 the cattleman and the farmers in the 1870s in
17 Montana getting together and deciding let's, let's
18 cooperate. The range war in that public/private
19 area is so old and so painful I'm not sure it
20 would work for psychological, if not for other
21 reasons.

22 But we have access to capital. In fact,
23 what we had was access to too much capital in the
24 nineties. There's a line -- the Merchant of
25 Venice, of course, is all about contract financing

1 and default, and liquidated damages, in a literal
2 sense. The pound of flesh but no blood. And in
3 the early stages of the Merchant of Venice -- and
4 you will, I'm sure, recall this from your high
5 school or college course in Shakespeare -- Portia,
6 the great heroine, the great lawyer, turns to her
7 servant and complains about how tough her life is.
8 And her servant, being the feisty little
9 Shakespearean heroine she is, turned to her and
10 said, I think they are as sick that surfeit with
11 too much as those that star with nothing.

12 And I think that's true. I think what
13 the capital markets did was we had too much
14 enthusiasm. We were too committed. We lost our
15 sense of perspective, we lost our sense of
16 discipline, and we committed too much capital, and
17 now we're going to have to go find a happy medium.
18 The capital markets will be there. We have to
19 find a mechanism to provide them with some degree
20 of comfort that they're going to get paid back,
21 particularly those fixed income universes, and
22 they will be available to you. But as Portia also
23 says later, if to do were as easy as to know what
24 were good to do, then chapels had been churches
25 and poor men's cottages prince's palaces.

1 Just because you know and you have an
2 insight doesn't mean that you're going to be
3 capable of doing that. It's a lot easier to talk
4 about it than it is to do it.

5 So with that brief oversight, let me
6 then -- we'll take questions. And I'm sorry that
7 was necessarily superficial, but I think it's,
8 it's good to go back and recapitulate this process
9 to put this in a context where if we make a
10 decision that we're going to be with one or the
11 other of these entities, or one or the other of
12 these structures, we can look back and say this is
13 what we tried before, and this is why it didn't
14 work.

15 Thank you.

16 MS. BORBELY-BARTIS: Thank you. With
17 that, do we have any questions or comments from
18 the audience?

19 COMMISSIONER PFANNENSTIEL: I have one.

20 MS. BORBELY-BARTIS: Thank you. Go
21 ahead.

22 COMMISSIONER PFANNENSTIEL: Phil, you
23 mentioned this concept that Charles Cichetti has
24 come forward with some alternate structure that's
25 not an IPP, and it's not a merchant plant, and

1 it's not an IOU. Could you say something more
2 about that?

3 MR. HUYCK: I think his concept is, and
4 I'm not the -- the ideal one to articulate it.
5 But I think his concept is that the IOUs' credit
6 is so degraded that they don't have access to the
7 capital markets at a sufficient level, at an
8 efficient cost. And if you could take -- one of
9 the reasons I, I went through that matrix that I
10 did was his argument is, if you take my matrix,
11 his argument is that the skill sets to develop
12 these new projects, the personnel and the talent
13 resides in the IOUs. The capital capacity resides
14 in the munis.

15 And what he would like to see is, in
16 effect, to out-source, as I understand it, to out-
17 source the, the operational elements of this to
18 the IOUs who have that capacity, and to have the
19 munis finance it. Now, the muni financing is
20 always a seductive concept. The reason it's
21 seductive is because it's 100 percent debt and
22 it's tax-exempt.

23 Now, it has a -- in effect, you're
24 getting a federal subsidy, and it's always very
25 seductive to say why don't I grab some of that

1 federal subsidy and use it in my state, and use
2 tax-exempt financing. Historically, that's more
3 powerful than it is today, because this spread
4 between taxable and tax-exempt in a low interest
5 rate environment is relatively trivial. The
6 really driving factor here is the maturity, is the
7 tenor. I don't care whether it's five or six
8 percent. I don't care if it's four and a half or
9 seven percent. I care very much whether it's ten
10 or 30 years.

11 So all I'm saying is that, that I think
12 his analysis is correct. I think there are ways
13 to combine different constituencies in an
14 intelligent way. I'm not sure that the perfect
15 combination is munis and IOUs. And the reason
16 that I mentioned that there are these third
17 parties out there is I think a lot of capacity and
18 a lot of talent and a lot of ability to do what he
19 was attributing to the IOUs may actually reside in
20 third party contract base capacity.

21 So if you're going to think about this,
22 think about it with an open mind. Don't just
23 assume that you've got to take one from Group A
24 and one from Group B.

25 CHAIRPERSON GEESMAN: I'm not certain

1 that Charlie's paper, though, was particularly
2 well grounded in the current status of tax law. I
3 think if you can squint --

4 MR. HUYCK: I think that's right. I
5 didn't want to address that, but I --

6 CHAIRPERSON GEESMAN: If you would,
7 though, comment upon what level of conundrum would
8 the state face in terms of debt equivalence
9 problems were we to move exclusively to a contract
10 model, or, as you put it, back to the eighties?

11 MR. HUYCK: Well, the --

12 CHAIRPERSON GEESMAN: And should we care
13 about that?

14 MR. HUYCK: You care about all these
15 things. They're all relevant. They're, they're
16 all issues to be discussed and addressed. Whether
17 it's at the government level, with budget
18 financings of various kinds, or whether it's at
19 the corporate level, what -- how your credit is
20 affected by these long-term contractual
21 relationships depends, I think, on two or three
22 factors.

23 One is are the projects working?
24 Because if something starts to go wrong and it
25 becomes complex, there is a -- a sort of

1 contingent nature to the perception by the rating
2 agencies. We're using rating agencies as a
3 surrogate for, you know, how is this risk
4 perceived. And I think that's usually the place
5 where this concern officially resides, is in the
6 rating agencies, whether a municipal or private.

7 If things are going along very well, and
8 you're producing in a relatively cost effective
9 basis and the projects are being honored, the
10 overhang, or the contingent nature of that
11 obligation, the perception of the risk of that
12 tends to diminish. As things get a little hairy,
13 they tend to come up on the screen. So a lot of
14 that is condition based.

15 And the other question is, like
16 Churchill's line about old age, it's not so bad
17 when you consider the alternative. And that is,
18 if those kinds of contractual commitments are
19 contingent commitments of various kinds, while
20 they may be quasi-debt equivalents, if they -- if
21 they foster and encourage the efficient
22 functioning of a system then that's a plus. And
23 even if they get a little debt attribution to
24 them, that's okay.

25 And so they're like anything else.

1 They're a tool, that kind of commitment's a tool
2 to be used. Again, would you use that
3 exclusively? And would there be implications to
4 an over-dependence on those? Possibly. But my
5 experience has been that these issues only become
6 visible or significant when something starts to go
7 wrong.

8 CHAIRPERSON GEESMAN: Joe.

9 MR. DESMOND: Thanks, Phil. Question.
10 You sort of talked about the history, which I find
11 fascinating to look at. The changes that have
12 occurred in large plant, the emergence of cogen,
13 and if you want to talk about virtual utility, I
14 guess.

15 But the question I'd like you to think
16 about is rather than when things go wrong, let's
17 talk about disruptive technologies, which is to
18 say there are going to be changes, and if we were
19 to look at super-conducting transmission or cost
20 effective energy storage, or the emergence of very
21 small footprint fuel cells, or distributed
22 generation, which -- as you think about those
23 three possibilities, how does that impose a risk
24 upon the market structure model that we might be
25 envisioning as we go forward? And, because, as I

1 say, I don't see that they're problems, but we
2 can't anticipate which one of those might happen
3 sooner rather than later, and I'm just wondering
4 if you've given that some thought.

5 MR. HUYCK: Absolutely. The question
6 there is, and it's a great question, and actually,
7 that's a very high-class problem.

8 If, if you told me that we were going to
9 find disruptive distributed technologies that
10 would replace combined cycle gas, I would kiss
11 your feet. Maybe not literally.

12 (Laughter.)

13 MR. DESMOND: Thank you. I won't hold
14 you to the offer, either, so.

15 MR. HUYCK: But your shoes are shined,
16 but.

17 I think that there is a way to, to
18 contract for a significant portion of your needs
19 in balance with a spot market that's intelligent.
20 And as, as these new technologies come on, it's
21 highly unlikely that anything will be that
22 disruptive that it will immediately make obsolete
23 the existing generation base. I think there's
24 probably plenty of time to fold those new
25 technologies in and have them displace the spot

1 market and the declining contracted market, and if
2 it were the case that you made, that you made the
3 existing technologies, if somebody came up with a,
4 with a fuel cell or a photovoltaic array that was
5 three times as efficient and all of a sudden
6 everything went on people's roofs and you didn't
7 need central station generating plant anymore,
8 that would be such an upscale problem.

9 So I think -- I think, in fact, I think
10 you should be working. The debate in energy
11 policy is almost always a time horizon debate. I
12 was once testifying before the Senate Finance
13 Committee and somebody asked me well, how much tax
14 credits do we need to make this work, and what
15 should we do. And the answer I said was give me a
16 timeframe. Is it one year, is it five years, is
17 it ten years, is it twenty years.

18 The answer is you have to work in
19 parallel. You can't work in, you can't work in
20 series on these things, you have to work, you have
21 to be thinking about what do I need to address the
22 issue next summer, what do I need to have a
23 legitimate diversified base in five years, a
24 mixture of, of committed capacity and energy, and
25 spot market so I can keep that other market

1 honest, because you need pricing signals that keep
2 that market honest. And what do I do to encourage
3 where I think we almost inevitably have to head,
4 which is where technology has carried us in every
5 other sector, which is towards small-scale
6 intelligent distributed, I don't care if it's cell
7 phones or you, you name it; we're moving in that
8 direction. And that's our, that's our potential
9 salvation.

10 So I don't think that's an issue. I
11 think it can be accommodated, and if it does occur
12 I don't think it's really going to be traumatic.

13 MR. GARFORTH: Could I add a small, add
14 a small point on that --

15 CHAIRPERSON GEESMAN: Sure.

16 MR. GARFORTH: -- that the -- you've
17 actually got a virtual cycle going on here,
18 because the robustness that's going to be needed
19 to put into the larger scale traditional networks
20 will require a lot more smarts, and that kind of
21 smarts will be highly applicable to the various
22 disruptive technologies that are emerging.

23 So I think you've actually got a virtual
24 circle, in most cases.

25 MS. BORBELY-BARTIS: I might except high

1 temperature super-con from that virtual circle to
2 some small degree. As I mentioned earlier, I'm a
3 technical advisor to the Department of Energy, I'm
4 not a financier, and in terms of high temperature
5 super-conducting probably as a contributor to a
6 cascading blackout at some later date, it can
7 actually end up contributing to a certain level of
8 disruption, in that we're talking about running
9 four times as much voltage through a single wire,
10 as we do currently.

11 Should that single wire then fail for
12 some reason, the level of the -- of the amperage
13 and voltage pressure on other wires that would
14 need to take -- pick up that slack, could actually
15 bring down a system faster. So it does have an
16 Achilles heel to it, at the same time that it
17 seems very attractive.

18 MR. HUYCK: There's a dark side to all
19 these technologies. I thought, I think, Joe, I
20 think your point was that as new technologies come
21 along, will they make the investment. But it's a
22 whole stranded cost issue all over again. And,
23 and if we had, believe me, if we had a distributed
24 technology that was doing that, we would be high-
25 fiving each other.

1 CHAIRPERSON GEESMAN: Let me follow up
2 there, though, and ask if you were, in fact, as a
3 matter of state policy, trying to determine which
4 actor you wanted to leave with the risk of
5 stranded assets, wouldn't you have a preference
6 for leaving that risk with a third party, as
7 opposed to a regulated utility?

8 MR. HUYCK: Remember the old Russell
9 Long don't tax you, don't tax me, tax that fellow
10 behind the tree? Sure. To the extent it's, it's
11 tempting if there is some risk to try to stick the
12 out of state, somebody from behind the tree with
13 it. That's, that's sort of a, a sort of a not
14 cynical, but a little bit depressing way to
15 approach this problem.

16 Yeah, that's -- you make an excellent
17 point. I can blithely go from deal to deal and
18 not worry about it, but I think if you're going to
19 -- if you're going to have a stranded cost issue
20 it implies that you're somehow going to -- that
21 the contractual relationship that's in place where
22 the risk was ostensibly shifted to the purchaser.
23 I mean, if somebody's got a merchant plant and
24 they're taking risk, that's fine. Unfortunately,
25 nobody's going to build a merchant plant with very

1 limited exception today.

2 So sticking somebody with a risk
3 honestly and up front is going to be very hard.
4 Stabbing them in the back is always seductive, but
5 -- I don't mean it that way, but I mean, I mean,
6 you know, coming back later and saying oh, you
7 know, we're going to reallocate this risk, is an
8 issue that's come up again and again. And I think
9 it's, if you're going to do it you should probably
10 do it up front. And it can be done up front. It
11 can be done with the nature of the way you develop
12 your portfolio as opposed to shifting the risk to
13 any one participant in the process.

14 CHAIRPERSON GEESMAN: I think the
15 independent generating industry right now would,
16 would agree with your characterization of it being
17 a very low, if not completely negligible risk of
18 stranded assets, and quite willingly accept that
19 risk in exchange for contracts.

20 MR. HUYCK: I think there is, there is
21 the possibility to get some flexibility in these
22 contracts. You can get flexibility in contracts
23 in a number of different ways. You can get it by
24 having them shorter term and shifting, you know,
25 shifting the risk after a period of time. You can

1 get them with off ramps, either with penalty, with
2 or without penalty payments. You can get them by
3 having only percentage committed long-term, and
4 the rest of it -- I mean, there are lots of ways
5 to quite legitimately shift the risk, and there
6 are probably lots of people that would take some
7 of that risk.

8 And to the extent that you want to
9 develop a portfolio, there is absolutely nothing
10 wrong with encouraging those players to take that
11 kind of risk that you, that you would like to
12 shift to them. It can be done. There's a cost
13 associated with that. There's an equity cost and
14 a debt cost. The shorter the tenor, the more
15 likely you are to have a shorter amortization.
16 And therefore, the cost is going to be higher.

17 So it's always, there's always that
18 trade-off that you're more familiar with than
19 most, and that is that, you know, that the more
20 reliable it is, the longer the amortization
21 schedule is, the lower the cost can be. And so
22 you, you figure out what that -- where that
23 balance is, and if you need those off ramps, you
24 can build them in in a lot of ways. And it's
25 legitimate to shift some of that risk.

1 MR. TIGER: One, just comment back on
2 the -- the -- we've already had that where, you
3 know, the benefit, people forget that the benefits
4 of competition, you know, could be basically that
5 if you look at most of the stranded assets that
6 exist today they're on the IPP balance sheet or on
7 the merchant balance sheet, they're the reason
8 they have those low credit ratings, and that some
9 of them have gone through bankruptcy. And that
10 isn't being left on the first order, you know,
11 with the ratepayers. So you've had, we've gone
12 through that.

13 I guess, just go back to the issue of
14 the bifurcation of, or the ability to tranche the
15 risk. So, you know, given what's happened with
16 the institutional markets and this may, the window
17 may open or close depending upon interest rate
18 levels and supply and demand for capital, but at
19 least today there is a vibrant market that can
20 take some of that tail risk and, you know, it
21 depends if -- so, and you can -- that all end
22 rates that are still quite attractive. That's not
23 to say it'll last for awhile, but it, it is there
24 now.

25 MR. HUYCK: This is, by the way, a very

1 convenient market to do some of this.

2 CHAIRPERSON GEESMAN: It sure is.

3 MR. HUYCK: And it would be a shame to
4 miss this window. So it speaks for coming up with
5 a policy and catching this, you know, the tail end
6 of this, because what we're talking about, you
7 would be kicking yourself if you came up with a
8 perfect structure, and it's always the case in a
9 capital markets, do I wait until I've got it just
10 right, and then the markets moving. So you've got
11 -- timing is not without its --

12 CHAIRPERSON GEESMAN: Well, and then
13 you've got the question every client asks, how
14 long is this window going to be open?

15 MR. HUYCK: Yeah. How long would you
16 like it to be open. Yeah.

17 MR. TIGER: One thing, just because it
18 hasn't come all of a sudden, there's the -- in the
19 financing markets, you know, some of these deals
20 are getting done on a variable rate basis, so the
21 tranches are variable. But there is at this point
22 a swap market to swap it back to fix from the
23 perspective of, you know, the sponsor of the
24 project. And that means that ultimately that
25 fixed rate flows into what the contract pricing

1 is.

2 MS. BORBELY-BARTIS: All right. If we
3 don't have any further questions or comments from
4 the audience, nothing else that you'd like for
5 FERC to take back to Washington, D.C., at this
6 point, any comments, then we're going to break a
7 little bit early for lunch, and we'll be back here
8 at 1:00 o'clock to resume.

9 Thank you.

10 (Thereupon, the luncheon recess
11 was taken.)

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1 AFTERNOON SESSION

2 MS. BORBELY-BARTIS: -- right here in
3 California, which makes him uniquely qualified to
4 talk about the challenges and issues surrounding
5 the financing and development of new capacity in
6 California. Perry.

7 MR. COLE: Okay. Thank you. It's good
8 to be here today to talk about the delivery
9 system. We've been talking a lot about the --
10 let's see what we're doing here -- okay. So we're
11 going to talk a little bit about the wires side of
12 the business and the financing and some ideas,
13 concepts that we've been developing at Trans-
14 Elect. And I'll give you a little bit of
15 background on Trans-Elect, as well as new
16 transmission development, and then talk more
17 specifically about the financing options.

18 By the way, my background, I've been in
19 the energy and electric and gas utility business
20 for about 24 years now, and have experience in
21 independent power development as well as coal and
22 oil and gas and electric and gas utilities, so a
23 fairly varied background, and have had officer
24 level positions at utility with treasurer of the
25 company and vice-president of regulatory affairs

1 and vice-president of development, a lot of
2 different jobs and positions which you're working
3 in a new development type company, you have to use
4 a lot of those type skills. So kind of a varied
5 background.

6 Let's see. Just, Trans-Elect, for those
7 that don't know, real briefly, and I think most
8 people, we are getting to be fairly well-known.
9 We're the first independent transmission company,
10 and as mentioned earlier, FERC is very encouraging
11 of independent transmission companies, those that
12 don't have an affiliation with either the
13 generation side or the load side. Independent,
14 and willing to, to do things and invest in the
15 system that the traditional vertically integrated
16 model does not do.

17 We did purchase a system, Consumers
18 Energy in Michigan, and we were also the first to
19 purchase a transmission system from -- in Canada
20 with AltaLink; we're a managing partner up in
21 AltaLink up there. I'm clicking too fast here.

22 That's the AltaLink system. They, for
23 those familiar with Canada, they have a very
24 advanced structure there where the distribution
25 unit is separate from the generation business, and

1 separate transmission company, AltaLink. So they
2 have disaggregated their businesses entirely, a
3 vertically integrated utility and it's working
4 very well.

5 AltaLink is currently in the process of
6 looking at upgrading a system between Calgary and
7 Edmonton, and just a lot -- also new transmission
8 being talked about out of the Murray area down at
9 the United States, as well.

10 Consumer system, we purchased May 1st,
11 2002, at a purchase price of \$290 million. Again,
12 this is an independent transmission company, no--
13 no affiliations with generators, marketers, or
14 load. And that's been a very successful
15 investment for us.

16 The new transmission development site
17 where I spend most of my time, we were formed to,
18 you know, finance and build new transmission.
19 We're the first private company to partner with
20 the U.S. government through Western Area Power
21 Administration to build the Path 15 project, and
22 we're also working on a partnership with the
23 Navajo Nation from the Four Corners to the Las
24 Vegas area. And the Path 15 project, to our
25 knowledge, was the first transmission only project

1 financing. There's been transmission finance
2 associated with generation, but not a stand-alone
3 project financing of transmission.

4 So what we are trying to do is build,
5 finance, own, operate, or any combination of the
6 above, new transmission projects throughout North
7 America. And as some of the earlier statistics,
8 there's a great need, you know, you see different
9 studies of, of the need for new transmission. EEI
10 did one in 2001 for \$56 billion. I think there
11 was one mentioned earlier today, I can't remember
12 the number, \$25 billion, or -- and I think part of
13 it is related to the normal kind of upgrades
14 versus absolutely new lines. I think the new
15 lines are closer to the \$25 billion. The 56
16 billion includes, you know, upgrades to
17 transformers and those kind of things. So the
18 more normal Cap X versus new line differences.

19 Path 15 is under construction. This is
20 going very well. I was at the site yesterday. We
21 have almost all the foundations are in, I think 98
22 percent of the foundations are in, and a lot of,
23 probably better than 50 percent of the poles have
24 been erected and we're starting to pull wire, so
25 we are expecting an online date later this year.

1 December 10th is the current target date to have
2 Path 15 online, and it looks like we're on our way
3 to do that.

4 The Navajo project is one of several
5 under development. We actually are following
6 about 15 to 20 different projects around the
7 country, and the only one that we've publicly
8 announced besides Path 15 is, is Navajo.

9 I think everybody's familiar where Path
10 15 is. It looks like we're currently projected to
11 be between us and just a little bit of the
12 structure. PG&E will, is doing the substations.
13 They're financing and actually managing the
14 construction of the substations. Their investment
15 is around, you know, probably around \$60 million,
16 50 to \$60 million. Our share around the \$200
17 million range for the line. Western is the
18 project manager. We actually financed their share
19 of the project. Western has the right of eminent
20 domain, as well as the -- did all the permitting
21 work under NEPA, and so they're the project
22 manager, and we're working with them on this
23 partnership. They'll own ten percent of the
24 capacity rights, we'll own approximately 72
25 percent of the capacity rights, and PG&E will own

1 18 percent.

2 The rate of return, FERC has granted a
3 13 and a half percent return on equity with a
4 50/50 capital structure, 50 percent debt, 50
5 percent equity, and Cal ISO is the sole customer.
6 So it doesn't have a long-term contract. We are,
7 we are a PTO with the Cal ISO, so it's a tariffed
8 regulated rate. It's just like any other
9 regulated utility. I mean, we're, we're basically
10 a regulated utility, we're regulated by FERC. And
11 construction started in September, and as I
12 mentioned, we're expected to be online in
13 December.

14 Just a little bit of background. It'll
15 increase the capacity by about 1500 megawatts.
16 It's 83 miles long, 500 kV. There are some
17 additional upgrades being done at the Los Banos
18 and Gates substations, and we're also creating
19 another circuit through PG&E, a 230 circuit
20 between Gates and Midway.

21 I mentioned, I think, most of this here.
22 The Navajo line, just briefly, is 462 miles, will
23 go from northwestern New Mexico to Las Vegas,
24 expect an on-service date of 2008. Currently,
25 Steag, which is a German firm, is working on two

1 750 megawatt coal-fired plants, in the permitting
2 and planning stages. We've also been contacted by
3 quite a few wind and solar developers who are
4 actually mostly interested in trying to find a
5 path to California. Folks in New Mexico,
6 primarily wind, are trying to find ways to get to
7 California with the renewable mandate in
8 California.

9 We're looking at, most likely at this
10 point it'll be built in segments. The demand
11 looks like most of the power initially would flow
12 into Phoenix. The Phoenix market's growing very
13 rapidly, and we're expecting most of the -- most
14 of the power initially to go there. This is the,
15 just a diagram, the map. The blue is the segment
16 that we would -- are looking to probably build
17 first. And we would complete the line over
18 multiple years after that.

19 Just some transmission trends. I
20 mentioned we're following, you know, 15 to 20
21 different projects, various stages of non-
22 disclosure agreements that we have with folks, so
23 we can't talk about which ones. We, as you heard
24 earlier, FERC is still determined to encourage
25 independent transmission ownership and independent

1 new transmission development, and we're definitely
2 trying to follow on that strategy. And we're also
3 interested in continuing to develop new projects
4 in California. Most of the new projects follow
5 where load and growth is, and obviously, the
6 southwest is, is an area that is -- still has one
7 of the fastest growth rates in the country, and
8 there's not as much new transmission needed
9 elsewhere as there is -- just logical that load
10 growth is where you're going to need most of the
11 new infrastructure.

12 With our contingency financing and
13 working capital reserves, somebody mentioned Cal
14 ISO's 90-day requirement today. We did have to
15 raise additional working capital reserves for the
16 project because we don't get paid for 90 days
17 after it's operational. So we did have to raise
18 some, some additional capital, I think it was 10
19 to \$15 million that we had to set aside. Once we
20 get up and running, that won't, you know, that'll
21 kind of go away, but it does take a while to, to
22 do that.

23 We have three LP interests. We're the
24 general partner, managing general partner, three
25 equity participants, six insurance companies,

1 three banks, and was very challenging, with many
2 issues raised about California. As Sebastian
3 talked earlier that California is still, there are
4 still some banks and financial institution and
5 equity investors funds that will, they've been
6 told by their senior management they cannot invest
7 in California. Maybe that's changed the last
8 month or two, but I can say that last year at this
9 time when we were in the market trying to raise
10 debt in equity, there were just certain people
11 that said well, gee, I really like your project,
12 it really sounds interesting, but we have a
13 mandate not to invest in California. We've
14 already either got too much committed there, or
15 we're just not sure of the regulatory environment,
16 and so we were, we were turned away by certain of
17 the institutions.

18 So there, you know, one of the things
19 that really helped on this project was it was a
20 federal project with Western and FERC rate in
21 terms of permitting and right-of-way, and FERC, it
22 was FERC regulated, which also helped a great deal
23 in raising capital and gave a lot of comfort to
24 both the debt and the equity. But there are many
25 questions still about how California could

1 negatively impact a project. It took us an extra
2 amount of time. We worked out a settlement
3 agreement with the CPUC. They had appealed our,
4 our rate, where we had gotten a 50/50 capital
5 structure and 13 and a half percent return on
6 equity, the CPUC had appealed that to a district
7 court in D.C. We spent several months, really put
8 the project on hold and spent several months
9 negotiating with the CPUC, and we were thankful to
10 have reached a good conclusion on that and worked
11 it out. I think we've got a good solution for
12 everyone.

13 But, you know, that process caused a lot
14 of the debt and equity folks that we were talking
15 to to wonder, you know, hey, what's going on, and
16 here goes California again. We were in, but now
17 we're out. We did lose one equity investor. We
18 had one of our largest equity investors, as soon
19 the lawsuit was filed, bailed out. And so, you
20 know, there's definitely impacts of agencies,
21 California agencies, even though you think you're
22 working your way through the process, that can
23 negatively impact it.

24 And so the rating agencies also, just on
25 that point that was raised earlier, PG&E was still

1 in bankruptcy, Cal ISO and the Power Exchange, and
2 the whole process of, of what happened in 2000,
3 2001 -- which, interesting to this project, is
4 helping solve that and alleviate the bottleneck --
5 the rating agencies came in and said you're -- we
6 like the structure of your project, we like the
7 way you have the financing structure, the revenue
8 stream, all the -- all the information, but it's
9 in California so therefore you're not going to be
10 investment grade.

11 All the credit, the ratios that we had,
12 there are debt service coverage ratios and debt
13 equity balances, and all those things, were well
14 within the range of investor, or an investment
15 grade rating, but it was, it was negatively
16 perceived that it was in California, so they said
17 that, that, you know, we would not get an
18 investment grade rating.

19 I think that may be changing, with PG&E
20 coming out of bankruptcy now. I think if PG&E was
21 not bankrupt at the time, there's a good chance we
22 would've got an investment grade rating. And, of
23 course, that would've been a lower debt rate that
24 would then flow into our capital structure when we
25 file with FERC. It's, it's too bad that, you

1 know, we couldn't have saved some more money there
2 at the timing. It was more of a timing issue.

3 It's, I think, as I said, I think
4 California is improving, and this is one of the
5 reasons why we're still interested in trying to do
6 more business here and, and help develop new
7 lines. Cal ISO was viewed as a positive, the
8 structure that we were able to set up as a PTO
9 with Cal ISO was positive in raising capital.
10 And, you know, we, our preference is around the
11 country, if there's a RTO or an ISO in place, we'd
12 prefer to do business there. We think that's a
13 better, a better model, and the financial
14 community, consumers -- the system we bought in
15 Michigan is Midwest ISO, and the tariffs and rate
16 processes around the ISO in Michigan were also
17 helpful. So our experience is that the investment
18 community is more comfortable with RTOs and ISOs
19 than they are without.

20 Now, we are, on the Navajo line, for
21 example, we're looking at bilateral contracts,
22 either with the generators or the load, and so,
23 you know, we're also willing to do bilateral
24 contracts. But we, we definitely sense more
25 comfort in an RTO type structure. We believe in

1 an RTO structure, even though we're an independent
2 transmission company we're not, you know, trying
3 to manage everything ourselves. We, we believe in
4 RTOs, and we will join an RTO and ISO in as many
5 circumstances as we can where we're doing
6 business.

7 I mentioned PG&E coming out of
8 bankruptcy is going to be helpful. I think the --
9 and I think the process of how that comes out is,
10 is going to be very important. We've had a good
11 working relationship, I should mention, with both
12 PG&E and Western. It's just really worked out
13 well, and the relationship we have with those two
14 parties on Path 15. And we think that is a good
15 model for the future.

16 Many lines in California, as everybody
17 knows, are still hung up in the regulatory
18 approval process, and so that was a great
19 advantage we had in Path 15, is that it was a
20 federal project. And it wasn't hung up in, you
21 know, the CPUC permitting process, and that was
22 very helpful in raising capital. And the approval
23 process, I think, you know, San Diego folks know
24 there's great risks there, and I would -- I was
25 talking to Sebastian during the break, that, you

1 know, for raising capital for new transmission,
2 and I think this is, you know, whether it's budget
3 allocations within the utilities or independent
4 companies like ourselves, the early stage
5 development capital is really tough to get.

6 Everybody's got a million questions about where's
7 the permitting, who's got jurisdiction, what about
8 right-of-way issues, eminent domain issues, all
9 those, you know, permitting a new transmission
10 line is much more difficult than a power plant.
11 It's -- just impacts a lot more landowners, lots
12 more territory.

13 Power plant guys may say I'm wrong
14 because it's all tough, but the reality is that
15 you just -- just because of the geography, you
16 are, you know, hitting a lot, a lot more people.
17 And so, you know, there's a lot more concern about
18 that. And the early stage capital for that is
19 very tough to get. There's a lot of people, once
20 the lines are in the air, you could fill a couple
21 rooms like this, probably, of folks that say yeah,
22 I'd like to invest in that. But you say well,
23 I've drawn this line on the map and this, this, we
24 need a new 500 kV from Point A to Point B, the
25 room clears out very fast, because they want to

1 know, you know, how long is it going to take to
2 permit, how long is it going to take to get the
3 right-of-way. When, for example, in California,
4 when are you going to get the CPCN. How many, you
5 know, millions of dollars are you going to need to
6 develop it. What's the legal cost going to be.
7 What's the, you know, all the NIMBY stuff.

8 So we do have people that are interested
9 in doing that with us, thankfully, at NTD, and we
10 are, you know, continuing to work on developing
11 new projects. But it takes a while to find them,
12 and so I just would comment that the early stage
13 development capital is very tough to get. And I
14 think even within utilities. Some of the
15 experiences that utilities have had, and we've all
16 heard the horror stories where somebody spent \$20
17 million, \$30 million, and have nothing to show for
18 it today. And so the question becomes even, you
19 know, a CEO of a utility is going to say well, you
20 want to build a transmission line from where to
21 where? And what did you do last week, or last
22 year, excuse me.

23 So it's, you know, that's just one of
24 the issues with, you know, financing new
25 transmission, is the stage. As you get farther

1 into the process, farther into the permitting,
2 farther into the right-of-way, more and more
3 things get lined up and more and more agreements
4 are looking like they're coming together, you'll
5 have more and more people show up and say yeah, I
6 want to invest.

7 But, so, anyway, the abandoned projects
8 stories are our toughest part of raising money,
9 where people have spent money because, and
10 particularly it's interesting, because as an
11 independent privately owned company, what
12 investors have a tendency to do is refer to the
13 failures of the IOUs. The big IOUs have not been
14 able to get projects done. And they say well, so
15 and so tried to do that and they lost \$30 million,
16 or didn't, you know. And so what makes you think
17 you can do it.

18 And we, we've got a pretty disciplined
19 approach. And it's a different approach. It's
20 not unlike the stories of the independent power
21 business, independent transmission is similar
22 where, you know, you have to be, without a deep
23 budget you've got to be more creative, and more
24 innovative, and I think we can, you know, at least
25 do as well as the IOUs in that regard. So there's

1 possible.

2 How do you go about building new
3 transmission and developing it, then. You know,
4 there's the public/private structures, like Path
5 15. We think that is a very good model for
6 additional lines to be built. There's also new,
7 you know, public/private structures, there was
8 some mention of this earlier, with state or
9 municipal type entities. I know that there's
10 several projects, one down from the Blythe area to
11 Beavers that IID has been working with a power
12 plant developer down there. And there's those
13 type structures that also might, might work and
14 help facilitate and speed up the development of
15 new lines.

16 And there's the traditional IOU
17 structure, and hopefully in California and
18 elsewhere, you know, IOUs, you know, we're not
19 against IOUs. We kind of in some ways compete
20 with them, but we'd also like to partner with
21 them. So we, we're hopeful that the traditional
22 IOU structure seems to be in certain cases broken,
23 frankly, on building new transmission. Some
24 states it's worse than others. A lot of places
25 you don't know, because it has -- nothing's been

1 built for 20 years. If you go to the northwest,
2 other than a couple lines that Bonneville's
3 currently building, there's really been nothing
4 built for the last 20 years, since Colster, the
5 Colster project out of Montana.

6 So, so how will it be to build new lines
7 out in the northwest? A lot of those in the
8 northwest are -- that are regional transmission
9 planning process that are trying to get to
10 California and deliver power here, it'll be
11 interesting to see how they -- whether they're
12 able to permit and site lines and get those built,
13 because they'd be primarily for export. They
14 would not be, some of the lines that I looked at,
15 Wyoming and Montana, in particular, are looking at
16 trying to build new plants, coal and wind, and
17 ship it both towards the southwest and the west.

18 So the question becomes are they going
19 to be able to, you know, get it sited. And the
20 governors of those states would like to see,
21 actually for economic development reasons, because
22 the economy's not doing particularly well,
23 particularly in Montana, where I'm from, and
24 Wyoming's doing much better. They've got a lot
25 of, they've got a lot of surplus there.

1 But they still want to develop new power
2 plants, build new lines, and ship it to the fast-
3 growing markets. And, and whether traditional
4 IOUs will do it, or it's going to be a
5 private/public structure. There's been some
6 legislation proposed to -- to possibly work on a
7 public/private type structure out of Montana to
8 the west. As an example, Senator Burns had a
9 proposal in, it was tried to get into the Energy
10 Bill.

11 And so it, it's likely that there could
12 be, if there's ever an Energy Bill passed, there
13 could be solutions on a federal level to address
14 some of the transmission siting issues and, and
15 deal with that. Again, we also would like to
16 partner with the IOUs where we can. That's
17 another option, as well.

18 Maybe there's other structures we
19 haven't thought of. There's no doubt that I think
20 very few people would say there's not need for new
21 transmission. The question is how do you do it,
22 and what structures work best.

23 Some of the things also we're spending a
24 lot of time on the regional transmission planning
25 that's going on, where it's the Midwest ISO, PJM

1 is doing some. But also, as I mentioned, in the
2 west in particular there's the STEP group that's
3 formed down looking at transmission lines from
4 Arizona into California. There's also RMATs,
5 which is the Rocky Mountain Area Transmission
6 group. They're planning to do a lot of
7 transmission lines out of the Wyoming and Montana
8 area towards the southwest, through Utah, through
9 Idaho, and trying to get to markets towards the
10 south and west.

11 There's a northwest area transmission
12 planning group which is made up of the Canadian
13 utilities in Alberta, and British Columbia, as
14 well as Montana, Idaho, and Washington and Oregon.
15 So there's another transmission planning group up
16 there. There's one also, they call it the SWAT
17 group, which is Arizona and New Mexico. So a lot
18 of transmission planning going on, and actually
19 it's pretty good.

20 You know, Cal ISO has been participating
21 in and leading a lot of the studies on that, and I
22 have to give them credit. I think it's wise for
23 California to have Cal ISO either participating or
24 leading the study efforts to see what is the best
25 resource, lowest cost resource that could be

1 imported into California. And there is a lot of
2 must run generation still, particularly San Diego
3 and Los Angeles, that there's more efficient
4 generation, as I understand it, in Arizona that
5 could displace some of the must run generation if
6 they had new transmission. And they're showing
7 very large different studies, and it depends on
8 which line you look at, so not all the lines are
9 positive. But there are different studies that
10 show that new transmission is much better than to
11 continue to run these old inefficient power
12 plants.

13 We are continuing to be interested in
14 working on renewables. I know there's a workshop
15 on Monday with renewables, and Tehachapi and
16 different folks. We've been visiting with those
17 folks to see if there's some way that we could
18 meet the transmission needs for renewables. That
19 would be a fun thing to do if that could be worked
20 out.

21 And we think that transmission plan,
22 renewable transmission plan, the CPUC, I know,
23 took a process to try and develop something that
24 makes sense, and I think that's a good effort by
25 the CPUC to really start looking at renewables on

1 a basis of, you know, as we talk to wind
2 developers and solar developers, they're all hit
3 with a single line, right? A 69 kV, or whatever
4 the size of their project, so they've got to bear
5 100 percent of the cost of the new line for their
6 project to be cost beneficial.

7 So if you can bundle together different
8 renewable projects, five or six or seven of them,
9 and one single line can be built to serve them,
10 then that's a good idea, right. And it's going to
11 be more cost effective for the consumers, makes
12 renewables more cost effective. So hopefully,
13 California will make additional progress in that
14 area. And I think that also, from raising
15 capital, having four or five folks using a line is
16 going to be more -- even though it might be a Cal
17 ISO type structure, it's still going to be a
18 better credit story in raising money versus a
19 single wind or solar developer.

20 So we're also looking at several,
21 talking to several utilities about doing upgrades
22 on the system. There's some utilities that have
23 an interest in us actually taking over their Cap X
24 budget. We've had various levels of discussion in
25 doing that, not just a single line but actually

1 taking over. If they have a 100, \$200 million a
2 year Cap X budget, we would actually step in and
3 take a part ownership of their system, and fund
4 it.

5 These are usually typically utilities
6 that are more distressed financially and are
7 looking for ways to meet their obligation to
8 serve, but at the same time see what they can do
9 to get -- to get new capital in the door in a
10 different way.

11 So we think we're on our way to proving
12 that independent ownership of construction and --
13 ownership and construction of transmission assets
14 work. We're prepared to cause billions of dollars
15 to be invested in the transmission grid. We think
16 we -- that, when I say billions, that's not early
17 stage development; that's lines in the air. The
18 early state development we're looking at a much
19 more modest number, and we're working with several
20 folks on raising that capital.

21 And we think the public/private
22 structure can work. And, and the partnerships
23 that we have on Path 15 are, you know, you can say
24 what you want, but it's getting done. So other
25 structures are not, and so that might be something

1 that makes a lot of sense.

2 So is there any questions? I, I have a
3 flight I need to catch, and a conference call, and
4 I'm going to be a little in and out this
5 afternoon, but if there's any -- so hopefully I'll
6 get most of my questions now. That'd be helpful.

7 MS. GRIFFIN: I have two questions.

8 One, using Path 15 as an example, what is your
9 revenue stream? Is it used and useful to
10 customers or is it a grid management charge uplift
11 to all the ISO users?

12 And the second one is what is your
13 liability in case of an outage like poor
14 vegetation management or an earthquake takes out a
15 tower?

16 MR. COLE: We, we're a PTO,
17 participating transmission owner, just like the
18 other, the IOUs and the other members of the Cal
19 ISO, so we have a tariff that we file with FERC.
20 We're getting ready to file our rate case here in
21 the next couple months with FERC. It'll be, it's
22 a, you know, FERC regulated with -- and it's used
23 and useful. It's a cost based type structure.

24 Again, we're a regulated utility. Our
25 filing will look a lot like any other regulated

1 utility, except for it's a new line versus an
2 embedded system. And so we'll follow all the same
3 rules and regulations that all the other utilities
4 do.

5 And I'm not sure if that answered your
6 question, but. Maybe you could follow up a little
7 bit if you have any further --

8 MS. BORBELY-BARTIS: And the liability?

9 MR. COLE: Oh, the liability. Again,
10 we're like, if -- if the line goes out, and it
11 will go out, we'll still continue to collect our
12 revenues. The other utilities in the country, or
13 in the state, if they have lines go out they still
14 collect the same amount of revenue.

15 FROM THE AUDIENCE: Who maintains the
16 lines?

17 MR. COLE: Western Area Power will
18 maintain it. They actually own it. We have
19 transmission rights. We have -- our ownership is
20 made up of long-term transmission rights, Western
21 actually owns it and they'll maintain it. And
22 then we'll pay them for the maintenance, and that
23 will go into -- the maintenance cost will go into
24 our cost of service for rate-making. It's a FERC
25 regulated rate.

1 But we're -- we look -- the short answer
2 is we look like every other PTO in California.

3 MS. BORBELY-BARTIS: Yes, sir.

4 MR. WOODRUFF: Two questions. One is
5 sort of a bottom line project finance question, as
6 follow-up to what Karen asked.

7 When you went for project financing you
8 had to show some sort of estimated revenue stream.
9 And is there, the way your rate-making works, is
10 there any sort of volumetric risk, or, you know,
11 variable, you know, usage risk --

12 MR. COLE: No.

13 MR. WOODRUFF: -- in your revenue
14 stream? So it's pretty much --

15 MR. COLE: It's --

16 MR. WOODRUFF: -- it's pretty much --

17 MR. COLE: It's just, again, we're just
18 like any other utility in California. They, if
19 they put a new line in, if PG&E would've invested
20 in this line it wouldn't have been usage based
21 either. So ours is, it's a needed line, and it
22 won't be -- as we all know, any new line first
23 going in is not going to be heavily as loaded as
24 the current lines that are out there. But, so
25 you, if it was strictly usage based, you'd never

1 construct it.

2 MR. WOODRUFF: That's -- right.

3 MR. COLE: Yeah.

4 MR. WOODRUFF: The other question is
5 less germane, but curiosity. How do you deal with
6 questions of eminent domain? Does NTD have that
7 power, that granted that power? Do you have to
8 rely upon the existing POUs and --

9 MR. COLE; We currently do not have
10 eminent domain. We're getting it in Michigan
11 right now. Interestingly enough, in Michigan,
12 even though we own the transmission system, it has
13 to be -- we have to get legislation passed.
14 Currently, we do not have the right of eminent
15 domain in California or any other state, because
16 we're not a load serving entity, and usually
17 that's granted to load -- a sealed structure;
18 right? And the legislation hasn't been -- hasn't
19 caught up with, with potential companies like
20 ourselves.

21 So we currently look to partner with
22 someone, whether it's Western or a utility,
23 municipality, or whatever. We, that's our current
24 plan. Or negotiate directly with landowners. I
25 mean, but that's tough. I mean, we know there

1 could be one landowner that could cause your
2 project -- so, you know, mostly early -- this is a
3 question for the early stage developers, you know.
4 The funding, our funding sources say well, yeah,
5 but you don't have eminent domain, what are you
6 doing to do? What if you got one landowner? You
7 know.

8 So, you know, a lot of those questions
9 -- so you've got to structure around it.

10 MR. WOODRUFF: Great. Thanks.

11 MS. BORBELY-BARTIS: Commissioner
12 Geesman.

13 CHAIRPERSON GEESMAN: Perry, I wanted to
14 thank you for being here today, and also for
15 Trans-Elect coming to our rescue here a couple of
16 years ago. You know, I think you did recognize
17 and seize upon what I believe to be a good
18 business opportunity, but one which I think was a
19 product of a cascading regulatory failure. I'm
20 hopeful that your business model in California in
21 the future doesn't depend on regulatory failure
22 and, in fact, can take advantage of some
23 regulatory successes.

24 My question for you relates to how you
25 see DC lines playing into your potential future.

1 MR. COLE: Yeah. The -- in terms of the
2 DC lines, they're -- typically, you need a fairly
3 long line to be cost beneficial, you know, over --
4 oh, there's different numbers floating around, but
5 probably over 400 miles before you're going to
6 start seeing DCB more effective than AC. STEP ran
7 some studies, for example, of importing power from
8 Arizona, and those studies, they, I think they had
9 two DC and four AC, and the DCs dropped out. It
10 just wasn't far enough.

11 But I think there will be long export,
12 for example, the lines out of Montana or Wyoming,
13 they started a study of DC lines there. There's
14 some being studied out of Canada. And, and I
15 think it's likely that, you know, more DC lines
16 will be built. The technology's improved greatly.
17 I know there's some upgrades being done on the DC
18 line from Oregon to California right now, swapping
19 out some old technology that's been very
20 unreliable and had a lot of outages, and they're
21 putting in new converter stations, which I think
22 will make that line a lot more cost effective and
23 reliable.

24 MR. BLUE: Hi. My name is Greg Blue,
25 with Dynegy. You made reference to a study, and I

1 want to make sure I heard you right.

2 You said there were some studies
3 regarding the power plants, new plants in Arizona
4 with new transmission are the better, efficient,
5 less costly than the existing --

6 MR. COLE: Yeah, there's --

7 MR. BLUE: -- older plants?

8 MR. COLE: Yeah, I should clarify.

9 MR. BLUE: Can you clarify that a little
10 bit?

11 MR. COLE: You bet. The plants are
12 already existing in Arizona. They're not running
13 at -- they're not running at full capacity.
14 There's some also, as I understand it, some plants
15 down in the Imperial Valley area just across the
16 border, and they're not running at full capacity.
17 So there's new plants that are actually available,
18 but they don't have capacity to import into
19 California to displace some of the must-run
20 generation that's currently out there.

21 MR. BLUE: Do you think the cost -- is
22 it the cost of a plant plus the transmission is
23 less than the cost of an existing plant in a load
24 pocket?

25 MR. COLE: That's -- the Cal ISO studies

1 that are currently being done show that there's
2 benefits to new transmission. Now, they're
3 currently studying Palo Verde Devers Number 2,
4 that Edison has proposed. As I understand it,
5 they're kind of on the fence whether that one's
6 cost beneficial. So it really depends, you know,
7 there's different scenarios where the upgrades to
8 the existing system, for example, they're looking
9 at some serious capacitor upgrades that are
10 definitely -- look to be in the money. And so
11 those look to be positive cost benefit. That
12 isn't any lines, it's just increasing the
13 capacity.

14 So that you have to be careful. It's
15 not every situation that, that makes it cost
16 effective.

17 MR. BLUE: Thanks.

18 MR. McCLUSKEY: Two questions regarding
19 Navajo. First, did you face the same kind of
20 credit issues that you faced on -- that you faced
21 on Path 15 on Navajo?

22 And secondly, did you have roughly the
23 same kind of a regulatory environment to deal
24 with?

25 MR. COLE: Yeah, it -- Navajo's earlier

1 stage, so some of those -- most of that question
2 is yet to be determined. But there's not an ISO
3 in place. That's the -- that's the critical point
4 right now, so we'd have to have bilateral
5 contracts with the load or with the, the
6 generator. So I think the credit issues are going
7 to be dependent on who we sign a contract with.
8 It's not unlike the discussion of the IPPs that
9 we, we did a few minutes ago.

10 We don't -- I should back up and state
11 one thing. We don't believe in the merchant
12 model, or, so far -- yeah, never say never -- but
13 we should define merchant, because I think there's
14 a lot of people that define it differently. Some
15 people think a merchant transmission line, which I
16 think Chairman Wood has kind of encouraged, and
17 I'm not sure which model he's thinking of, but the
18 thought about that is that if you build a new line
19 and hope somebody will use it once it's built, you
20 know, you can't finance that.

21 And so we're looking for, you know,
22 projects that have long-term contracts, and just
23 like the IEP business, the only thing getting done
24 right now is, you know, long-term contract
25 business. And, you know, the merchant

1 transmission is very tough. I mean, we mentioned
2 conjunction earlier. Conjunction was more of a
3 merchant model, you know, I think they -- I don't
4 know for sure, but they tried to do 10, 15 year
5 contracts, then they went to five, and it just
6 didn't work.

7 And, but maybe Sebastian can talk more
8 about that.

9 MR. TIGER: If I can just jump in a
10 second. I think the, the last iteration of
11 conjunction was a mix of having five-year
12 purchases of financial transmission rights with
13 the hope that people would exercise an option to
14 extend it to ten years. And that didn't lead to,
15 you know, that much demand, or enough demand to
16 warrant building, you know, going forward with
17 development and ultimate construction of the line.

18 I, in my talk I didn't light on one
19 issue that the Commission has still outstanding, a
20 proposed transmission pricing policy statement
21 that is still in the works and has not been
22 issued. And it's attempting to look at, you know,
23 various incentives and structures to enhance, you
24 know, depending on how you define it, though I
25 think it's quite broad, pure merchant

1 transmission, as well as the creation of
2 independent transmission companies, as well as
3 people, companies joining RTOs.

4 And so, but I would also say that the
5 Commission is trying to listen to the market as to
6 -- as to having it be a realistic policy, so.

7 MR. COLE: Right. And I think that, you
8 know, maybe merchant transmission is going to work
9 someday, true merchant, what I call, you know,
10 selling the capacity on one month, one year, two
11 year type scenarios. But it certainly doesn't
12 look doable now. And one of the issues I think,
13 whenever we thought about it, you know, we've
14 looked at several, people have brought them to our
15 attention, we've, you know, got out the calculator
16 and tried to figure it out -- our computer, I
17 should say.

18 But the problem is that you eliminate
19 the differential, right? Region A has a higher
20 price than Region B. You build the line, you're
21 looking at a differential. And what the problem
22 is, is the load doesn't want to sign up for the,
23 let's say, a fairly high cost capacity contract,
24 and then there are a bunch of free riders. And
25 vice-versa. The generator, you know, doesn't want

1 to sell -- sign up for 500 megawatts, make the
2 project go, and then his -- his buddy across the
3 street, his competitor across the street, you
4 know, jumps on and, you know.

5 So the point you have is well, once you
6 build a line, you eliminate the price
7 differential, and that's a lot of what, you know,
8 a merchant transmission line's based on, true
9 merchant versus long-term contract. And, you
10 know, it kind of breaks down the economic theory,
11 then.

12 MR. TIGER: Yeah. One point there is
13 that one of the things that some within -- and
14 this is purely personal again -- some within the
15 Commission are looking at, is if it's truly
16 merchant transmission you have to sort of view it
17 as comparable to merchant generation. And from
18 that perspective, there would be a structural
19 difference from what has historically been thought
20 of in that regard. So you'd actually essentially
21 have a reservation price, or you'd bid in your
22 capacity as a transmission line, as opposed to
23 turning over all of that capacity to the -- to
24 the, you know, in a case where there's an ISO
25 there is -- to the ISO.

1 That has economic implications, but, of
2 course, it also has reliability implications, so
3 that's a bit of a difficulty. But it's still --
4 to make it actually apples to apples, that would
5 be something that would, you know, that would
6 probably -- and maybe I should be asking you the
7 question, would that make it more -- more
8 attractive, do you think.

9 MR. COLE: It might. I mean, we should
10 -- I should clarify. There may be models or
11 structures that could be developed that, that
12 might make a project economically and financially,
13 financing-wise, viable. But so far, you know,
14 just, you know, the short term capacity theory of
15 true merchant is, is not doable.

16 And I think a lot of people don't know
17 where power prices are -- you know, what, when you
18 do the transmission line, now you -- usually a
19 generator can sit and think about what's going to
20 happen to the power price market, and then you
21 throw in the transmission on top of that, and it
22 gets very, very difficult to analyze. And, you
23 know, my personal opinion is that we need to make
24 sure the wholesale and retail power markets are,
25 you know, working effectively before we worry

1 about getting too far down the path on true
2 merchant transmission. We've got a long ways to
3 go before we're prepared to do -- I think the
4 country as a whole is prepared to really go that
5 direction.

6 We've just got so much complexity now.
7 I mean, you start looking at all the calculations
8 and formulas, and all these RTOs and things now,
9 and the congestion pricing, and, and then look at
10 all the generators and the bankruptcies and all
11 the things. I, we just, it's, you know, maybe
12 it's a true merchant transmission model's
13 available three, four, five years from now, but
14 it's pretty tough today.

15 MR. McCLUSKEY: How about the -- excuse
16 me. How about the regulatory environment?

17 MR. COLE: In California?

18 MR. McCLUSKEY: No, in Navajo.

19 MR. COLE: Oh, in all the Navajo line?
20 We're, we expect to be a FERC regulated structure,
21 as well. I don't know if there's any further --
22 rate structure, or permitting, or --

23 MR. McCLUSKEY: Well, permitting.

24 MR. COLE: Yeah, permitting down there,
25 we've been working, a lot of it's on Navajo land,

1 so Western initially did the work and issued a
2 record of the decision, I think in '97. And we
3 are now working with BLM and others on continuing
4 to get the line completely through the process.
5 There were some things in that record of the
6 decision that didn't complete it entirely. We do
7 have -- on the Corporation Commission, did approve
8 the portions of Segment 3, the third segment, from
9 north of Phoenix to Las Vegas. That's not on
10 Navajo land, and they did issue the permit and
11 gave the authority on that.

12 We've got some, you know, some fine
13 tuning, clean-up that we're currently working,
14 working with the federal agencies, primarily, on.

15 Other questions?

16 Thank you. Enjoyed being here today,
17 and hopefully I'll get a chance to visit a little
18 bit more.

19 MS. BORBELY-BARTIS: All right. Thank
20 you, Perry.

21 Okay. We actually have an additional
22 speaker today. We have two speakers that we're
23 going to close with. And so for the moment, Peter
24 Garforth is going to speak, and I'd like to ask
25 John Flory to join us up here at the table. He

1 will be closing us out today.

2 I very much wanted Peter Garforth to
3 speak today. Again, this morning, if you were
4 here, I talked a bit about demand response and the
5 need to, to think about the demand side of the
6 market at the same time that you're considering
7 investments in and regulations regarding the
8 supply side of the market. And Peter Garforth has
9 spent many years looking at sort of integrated
10 supply/demand management in the industry.

11 Peter Garforth has had a long career in
12 business, starting in the UK working for Hewlett
13 Packard, and over the years, over the decades,
14 actually, senior management career positions with
15 Honeywell, Landis and Gyr, which is, of course,
16 now Siemens, and his last position was the head of
17 strategy for Owens Corning, where he actually -- I
18 think he'll talk about that a bit today, his
19 experience there.

20 He's lived and worked in the USA,
21 Europe, and around the world, and he's had a long
22 interest in energy productivity as a profitable,
23 or profit-making opportunity, including major
24 municipal businesses in Europe, which is something
25 else that I'm very keen for us to share his

1 experience on.

2 So with that, Peter Garforth.

3 MR. GARFORTH: Thank you. I'd like to
4 challenge right up front some caricatures. The
5 first caricature is now we get the tree hugger for
6 ten minutes, just to be polite.

7 (Laughter.)

8 MR. GARFORTH: I want to talk about the
9 energy, integrated energy productivity as part of
10 the total solution. When we were preparing for
11 this meeting we had a conference call, and we
12 said, you know, really what we're looking at is a
13 portfolio of challenges. And this is a piece of
14 the portfolio. It is not the answer, the
15 alternative answer to big grids, it's not the
16 alternative answer to 100 years of history. It's
17 not a piece of the puzzle. So please park the
18 thought that, you know, now we're getting into the
19 little stuff and we've just got to be polite. You
20 can be polite. That's always good.

21 The second thing is greetings from Ohio.
22 As you can tell from my accent, I'm from east
23 Ohio.

24 When I joined, when I joined the energy
25 productivity industry quite a long time ago, I

1 rapidly realized that my best customer was a great
2 owner with a crappy system. And in Owens Corning,
3 when I joined that company eight years ago, we
4 were spending \$260 million on energy, worldwide,
5 and within four or five years of an integrated
6 energy solution program, we had reduced that by
7 \$80 million of effective productivity gains. And
8 huge environmental improvement, huge business
9 improvement. And by the way, we're not done yet.
10 That's now going to the next step, which is major,
11 re-thinking the entire energy strategy of the
12 process.

13 So please, this is a scale conversation.
14 This is not the little stuff just to, you know,
15 satisfy some environmental agenda.

16 Somebody will tell me where to push the
17 button. I guess I go page down. There we go. Go
18 ahead.

19 Okay. I focused on the urban
20 environment, but there are parallels in other
21 environments. Most of you I know will have read
22 "The Tarnished Golden State." I'm sure there'll
23 be opinions pro and con, but I picked out one of
24 the phrases which is towards the end of the
25 report, which I think is rather important, which

1 is the concept of the hybrid business model and
2 the concept of focusing in the municipal
3 framework. As far as I'm concerned, those are the
4 only two key points there, so don't get into a
5 policy recommendation thinking.

6 However, I have one huge issue with one
7 word on that page, and that word is electricity.
8 You immediately close off other options if you
9 write the phrase that way and then start debating
10 is it a good phrase or a bad phrase, is it good
11 policy or bad policy, yada, yada, yada. I would
12 like us to think of energy distribution. And I'll
13 explain why as I work through my story.

14 Let's start in the numbers first. Too
15 often we look at energy, especially where we're
16 talking energy efficiency as a piece of the
17 puzzle, as an environmental issue, let's look at
18 money. Round numbers, globally we spend \$3
19 trillion on energy, the USA spends \$850 billion of
20 that, and California, round numbers, is a fifth.
21 Like any other bill -- by the way, to scale that,
22 that's roughly three times the size of the global
23 car industry, so it's not a small number.

24 We should always think of anything we
25 spend money on as the energy we use and the energy

1 we waste. So it's not a bad idea to quickly look
2 at that, and Anne-Marie, in the opening comments,
3 referred to it in another way. I've commented a
4 little more, you know, formally.

5 Homes and buildings in the USA is 40
6 percent of the total energy load. Against global
7 best practice you'll see later, U.S. homes and
8 buildings rank somewhere 200 percent. If you say
9 global best practice equals 100, they rank
10 somewhere in the 200 percent range. Industry is
11 about a third of the total, and they probably rank
12 about 110 against global best practice.

13 Transportation is 25 percent, and they rank about
14 140 against global best practice. Transportation
15 predominantly is vehicle size and consumer choice.

16 Most of that energy gets lost in
17 inefficiencies. When we say most, it's only five
18 to 15 percent, and that's really being kind
19 because it's hard to find a 15 percent example.
20 Only about 15 percent gets used productively,
21 i.e., as light, heat, computing power, whatever.
22 So bottom line, we pay three trillion and we get
23 maybe 300 billion, on a global basis.

24 There's some new price realities out
25 there. These are just some random ones I picked.

1 Ignore the right-hand column, which is gasoline,
2 petrol, which is predominantly, you know, hugely
3 different public policy. But if we look in the
4 markets around electrical industrial gas,
5 electricity, residential, commercial is very
6 similar. Bottom line, you see the USA and the
7 traditionally much more expensive Europe is
8 actually globalizing in cost.

9 California electricity is higher than
10 most of the European Union today. So if anybody
11 thinks the inefficiencies on a cost basis can be
12 economically defended because, well, the unit cost
13 is cheaper, probably true 20 years ago, might even
14 have been true ten years ago; certainly not true
15 today. So there's some real fundamental
16 competitive issues that need to be recognized.

17 If we look at energy productivity, and
18 I've defined energy productivity throughout this
19 as cost per unit of useful something or other. So
20 on this slide, it is on the right-hand side,
21 energy use of GDP, and I've taken the USA as 100
22 throughout. And energy per unit of GDP, while
23 you're doing better than Canada, that's good, but
24 there's a significant gap with the EU 15, which is
25 roughly the same size economy. And I pulled out

1 Germany as the largest single economy in the EU.

2 Anne-Marie asked me to do some
3 comparisons with the EU, so please don't think
4 this is Europe-America xenophobia, or anything.
5 This is simply trying to get some numbers out
6 there so we can see if there's any opportunities.
7 Anytime I'm in business, if I see somebody's I'm
8 running 100 and some just running 65, at a minimum
9 I want to know why, I want to know if there's some
10 things I can competitively learn to close that
11 productivity gap. Because at the end of the day,
12 major economies compete. So there are significant
13 GDP energy productivity differences.

14 We've all seen this. Anne-Marie's one
15 this morning was the, you know, the Q light bulbs.
16 This is the same thing, but this is just the
17 electrical chain of the USA. And I do it this way
18 because it visually rather highlights a rather
19 critical point. On the left-hand side you've got
20 the wedge, which is the 100 percent of the fuel we
21 pay for, be it wind, be it coal, be it nuclear, or
22 whatever. On the right-hand side, the bottom
23 third, if you're lucky, is the useful energy going
24 to industry and buildings. Most of it goes
25 somewhere else. And then the big chunk at the top

1 is unsold energy.

2 Please note the change of vocabulary.

3 The electrical industry always talks about unsold
4 energy as waste heat. Like it's a god-given fact
5 of life that that heat has to be got rid of
6 through expensive cooling towers and distributed
7 some way into the river. And then 70 percent of
8 all electricity in the USA goes into homes and
9 buildings. So when we talk managing peaks, when
10 we talk managing the electrical value chain and we
11 don't talk managing buildings, that's like an
12 industrialist saying I don't really care what the
13 furnace efficiency is when I'm running a factory.
14 It is a huge chunk of the electrical chain.

15 It's history that got us here. If you
16 go all the way back to cutting down the first tree
17 to keep the cave warm, you know, we started by
18 finding the fuel to warm the structure and we
19 haven't stopped ever since. Anytime we wanted to
20 get more services we went out and we found more
21 fuel. And our thinking traditionally has gone
22 from fuel to conversion to application to service.
23 And so if I'm looking at building efficiency only
24 as the 30 percent that lives in the building, I am
25 missing 70 percent of the leverage of that

1 building as a load. And that's a huge, huge cost
2 impact if you look at the total infrastructure.

3 It's also highly vulnerable to fuel
4 price risk because, by definition, if my gas cost
5 doubles in the next ten years -- which, you know,
6 there's probably a fair number of people in the
7 room who believe it will -- if the natural gas
8 cost doubles in the next ten years, that cost of
9 the service is ridiculously leveraged by the
10 inefficiency of the conversion chain.

11 So I hope I'm coming at this a little
12 bit differently from the classic tree hugger. I
13 also wear a suit.

14 Can we think differently? Well,
15 sometimes we can, and this is what we did in the
16 Owens Corning situation, when we said the only
17 thing we're interested in is insulation in the
18 back or fiberglass on reel. In other words, how
19 we melt the -- what fuel we use to melt the rocks
20 to make the glass, is irrelevant. So you start,
21 if you start the other way and say now, how much
22 light do I need on the table, how much power do I
23 need in the computer system, how much -- how much,
24 how much, how much, and then work back through
25 what is my most efficient way to get enough fuel

1 to make it happen, a number of things happen.

2 Firstly, the scale between fuel and
3 service shrinks dramatically. That makes the
4 attractiveness of maybe some of the alternative
5 technologies more appealing. They don't get
6 overwhelmed by the sheer scale of the value train
7 inefficiency. Generally speaking, you get better
8 returns, doesn't take a, you know, an Einstein in
9 business to say that if the right-hand side is the
10 cost on this particular picture, and the left-hand
11 side is the value, and if the right-hand side is
12 smaller than it was before, then the returns have
13 improved in that value chain. Depending what it
14 cost to invest -- to challenge it.

15 And when you start thinking this way,
16 you also begin to say well, is the meter really an
17 act of God? Where the meter is in the value
18 chain, where the tariff changes hands is an
19 accident of history. If in a factory I put
20 individual tariff meters on the injection molders,
21 I can tell you, I would run that factory totally
22 differently than if I put a single tariff meter on
23 the product as a whole. Is there anything saying
24 I couldn't have tariff meters on the injection
25 molder? Absolutely not.

1 So if you start thinking this way you
2 begin to say well, maybe I can have my economic
3 transitions, my ownership structures, my shared
4 value structures somewhat differently than the way
5 they are today. So that's how you see into some
6 different territory.

7 And if we start looking at the service
8 needs, instead of starting at the top of the page
9 on this, why don't we start at the bottom of the
10 page and say how much heating, hot water
11 conditioning, lighting, and other services do I
12 need, and then start working back up, and now
13 suddenly, my portfolio of options to supply those
14 services changes dramatically. Technically, it
15 changes. Economically, it changes.

16 I'll give you a good example from Owens
17 Corning. When you're melting glass you use
18 oxygen, electricity and gas to fire the furnace.
19 For 60 years, Owens Corning had had technical
20 magic in each of its plants as to exactly the
21 right mix of oxygen, gas and electricity to get a
22 perfect product. This was folk wisdom. Tribal
23 knowledge. The reality was, the plant in Texas
24 had a different tribal knowledge than the plant in
25 India and the plant in Belgium. And it didn't

1 matter.

2 The fuel mix of oxygen, gas and
3 electricity in those furnaces was very simple. It
4 was an economic mix. But it was being managed as
5 a technical mix. So we changed the procurement
6 practices and the furnace management practices,
7 and we took about 15 percent out of the cost of
8 fueling, firing those furnaces.

9 So, if we look at this now we can
10 suddenly start saying okay, I've got a efficient
11 environment, super-efficient construction -- I'm
12 defining super-efficient as anything which is 10
13 to 20 percent above market norm -- so anything
14 that is, uses 10 to 20 percent less than market
15 norm, broadly speaking is super-efficient.
16 Obviously, better is better.

17 I can think about local generation. I
18 can think about biomass. I can think about gas.
19 And I can now start building my portfolio of
20 supply very differently. End effect. In the time
21 available I'm going to have to trust in the wisdom
22 of the room that knows a lot of this background.
23 End effect. I will generally end up with quality
24 buildings that have a high resale value, a high
25 rental value, and low energy cost and low

1 operating and maintenance costs. I will end up
2 with a reliable supply because I am now balancing
3 portfolio with local and distant sources, and even
4 renewable and efficiency sources.

5 I'll have a tailored solution. The
6 energy mix to run a furnace is different from the
7 energy mix to run a city center hall, is different
8 from the energy mix to run a shopping center. The
9 economics are different. Supply and quality
10 pressures are different. So I get tailored
11 solutions.

12 Hugely, I flatten the electricity peak.
13 And if this alone doesn't get people's attention,
14 it should. If I can move my cooling load to the
15 heat side of the electric value chain, where my
16 peak energy is costing me a fortune, my peak air
17 conditioning is costing me a fortune, I have a
18 massive impact two ways. One, I reduce our very
19 expensive peak power; and, two, I recall some of
20 the waste that was costing me money to get rid of
21 in the past.

22 I can optimize investment. I can say do
23 I really want to invest in super-efficient
24 buildings or maybe I'll invest in slightly less
25 efficient buildings and slightly more flexible

1 energy supply systems, because I am now putting my
2 economic envelope around the totality, instead of
3 having this artificial line which is there, as I
4 say, as a regulatory and technical historical
5 artifact.

6 Bottom line, in this environment I will
7 usually get an energy footprint which generates at
8 least one-third the emissions of its peer
9 equivalent. That's not minor. And if you want to
10 start valuing carbon dioxide at the current London
11 market forward rates of 15, 12 Euros, \$15 a ton,
12 for January the 1st contracts, next year, suddenly
13 that two-thirds of emissions reduction might turn
14 into a very attractive cash flow in some future
15 power constrained market. We won't get into that
16 discussion here, clearly, because there's some
17 differences of opinion between the EU and the USA
18 on that subject.

19 The prior returns for the energy
20 supplier, and again, don't get into the it can't
21 happen here syndrome because of current ownership
22 structures. This hypothetical energy supplier is
23 now getting two or three revenue streams off the
24 same assets. Again, it doesn't take an economic
25 brainwave to work out that you probably get better

1 returns if you manage that properly. If I'm
2 selling the heat instead of dumping it, I'm
3 probably going to make more money on the same
4 assets.

5 Challenges are scaled. I cannot think
6 this way for one house on the corner of a suburban
7 development. I can't think this way for a 20,000
8 square foot commercial property. But I can think
9 this way for larger structures. The inertia of
10 the market, huge. Regulatory utility
11 construction. I always say the, you know, the two
12 most conservative industries in the world are the
13 construction and the utility industry, and in this
14 conversation they come together. Makes an
15 interesting dynamic. Current ownership
16 boundaries. Not trivial, by any means.

17 And last, but not least, probably the
18 biggest single barrier is myths and perceptions.
19 You can't move heat more than 100 meters. The
20 feeder behind Mannheim in Heidelberg in Germany is
21 26 kilometers. There is a one degree centigrade
22 temperature drop on that transmission feeder. The
23 heat, the heat comes off a 2,000 megawatt coal-
24 fired power station, traditional technology.

25 Second myth. You can't cogenerate

1 anything bigger than ten megawatts. Et cetera, et
2 cetera. There is a huge amount of mythology out
3 there about getting integrated solutions.

4 Can we capture those benefits? I want
5 to hit, very quickly, buildings. This map shows
6 where we are on performance standards for
7 buildings around the world. Focus particularly EU
8 and North America, that was the comparison I was
9 asked to do. And the EU has mandatory standards
10 for buildings; the USA has voluntary. That may
11 surprise people. You have very tight efficiency
12 standards for the components that go to make up a
13 building.

14 However, once it's put together as a
15 building, there's no standard for the performance
16 of the building as a total. In general. There
17 are a few exceptions. California, credit to
18 California, is trying to move in that direction.
19 The EU, it's a legal requirement.

20 This is the emerging energy performance
21 certificate that you'll find in every building
22 over 1500 square meters, 15,000 square feet in the
23 not too distant future. Pioneered in Denmark. If
24 you have a C building, you are average for your
25 peer group. If you have an AB, you're better, and

1 if you're a DE, you're acceptable but less, and if
2 you have an F, you have an unacceptable building.

3 The second page of this report lists the
4 measures and the costs to move you from a C to a B
5 or from a D to a C, or from an E to an F. In
6 other words, it's a one step level of improvement.
7 And the last page of the report, it's a three-page
8 report, tells you how they did the sums.

9 It's calculated in new buildings and
10 measured on existing buildings. And if you want
11 to sell the building, well, if you're going to
12 sell it, that's got to be in the financing ducts
13 of the building. Australia is going a similar
14 way, but Australia is doing it not on a mandatory
15 basis but on a voluntary basis.

16 End effect, this is the range of use,
17 energy use, and I won't go through all the
18 numbers. But round numbers -- and forget whether
19 it's U.S. or Europe -- best in class, low energy
20 codes can be as low as 60, 50 to 60 kilowatt hours
21 per square meter, divided by ten for square feet.
22 And that's not kilowatt hours electric; that's
23 kilowatt hours equivalent of all energy used. And
24 the average in the USA runs somewhere between 200
25 and 500. California is a little better than the

1 average, but it's still a big chunk of the number.

2 Homes fall into a similar range. By
3 definition, buildings are the second largest
4 source of carbon dioxide, so if we are concerned
5 about climate change we ought to be concerned
6 about buildings.

7 Now, if you think about that range, just
8 think about the cash opportunities to pull money
9 out of the value stream if we're thinking
10 integrated. So I want to talk very briefly about
11 one city and its municipal utility. It's 350,000
12 people, university town, big industrial base. It
13 has a multi -- I think in "The Tarnished Golden
14 State" they talked about a municipal power agency.
15 Think of this as a municipal energy agency. It's
16 the same thinking.

17 It's a multi-utility. It's responsible
18 for all modalities of energy, heating, cooling,
19 gas, electricity, water, wastewater, and the
20 public transport system. It's a sharehold -- it's
21 a shareholding between the city, in the case of
22 Mannheim a strategic investor called Rural Gas,
23 which looks a lot like a big regional investor-
24 owned utility. And about 15 percent is floating
25 on the Frankfurt stock market. It's been around

1 for 116 years. It was a city-owned monopoly up
2 until the mid-nineties, and then it was partially
3 privatized.

4 The structure's not that important.
5 Look at the business model. The business model as
6 an agency is integrating district heating,
7 cooling, gas, electricity, wastewater, water and
8 mass transit for an optimum balance of essentially
9 efficiency and productivity.

10 This is the energy zoning map of the
11 city. It's the Rhine River running north/south --
12 it doesn't look unlike Sacramento, actually, if
13 you look at it -- and the -- river running roughly
14 east/west. The city is zoned. It's not, in other
15 words, it's not a religion, it doesn't have to be
16 district heating all over the city because that's
17 some policy. It's zoned on density and it's zoned
18 on anticipated density.

19 So you see the pinkish areas there,
20 that's where it's zoned for district heating,
21 essentially hot water. You see the green area,
22 that's where it's zoned for steam. So that's a
23 development area for, guess what, industrial.
24 Who's there? BISF and All Chem. So in other
25 words, when they build their factory they can go

1 to the public utility and take processed steam out
2 of the public utility.

3 Where's the heat coming from? Well,
4 it's coming off the 2,000 megawatt cogenerator,
5 so, back to the mythology, yes, you can get
6 cogeneration from a traditional plant. It's
7 coming off a biomass generator 25 megawatts, it's
8 coming off a huge waste energy plant about 60
9 megawatts, and it's -- then the more traditional
10 electricity and gas is coming both from regional
11 grids and from wind farms.

12 This utility has developed new skills.
13 It sells multiple services; facility design, site
14 development, wastewater. So if we're thinking
15 about some kind of re-thinking of the energy
16 infrastructure at the city level as being an
17 opportunity for California to be an innovator,
18 because the bottom line is California has problems
19 today, many, many similar problems around the USA,
20 and not just the USA. So in other words, learning
21 how to tackle these problems at home is not only
22 fixing a problem, it's actually potentially
23 creating business opportunity and innovation for
24 those skills in other markets.

25 The particular Mannheim utility is

1 running seven cities in Germany, for municipal
2 services, and is running five cities in Poland,
3 including a very large city in Poland called
4 Stettin, which is over two million people. Okay.
5 So in other words, this expertise became a
6 product. Simple as that. They are one of the
7 largest energy communal consultants, probably, to
8 cities around the world.

9 The energy density of the city is in the
10 top ten percent of European cities. So if you
11 look at it now, comparativeness, cost of energy in
12 the city on average across the city is very, very
13 emotionally attractive.

14 Oh, by the way, I just want to go back
15 to one thing. You see those services, you see the
16 list of the services, heating, cooling, gas,
17 electricity, waste and wastewater and mass
18 transit. That's the sequence of profitability. I
19 did that intentionally. Their most profitable
20 product is what we call waste heat.

21 I'll say that again. Their most
22 profitable product is that which we call waste
23 heat.

24 Okay. This is, this is an example of
25 the skilled work they're doing. This is a project

1 they're doing purely privately. It's a brown
2 field development in a city, Seelze-Sud Hannover,
3 west of Hannover, integrated energy plant is
4 developed so a developer coming in there now knows
5 this is going to be district heat, this is
6 district cooling, this is electricity, this is
7 gas, so I know where my utility connections are
8 going to live. Combined with super-efficient
9 buildings, because we're under pressure to build
10 buildings which are at least twice as efficient as
11 their American counterpart.

12 Then once I have that integrated plan,
13 if you look at the slide before, you see here --
14 pointing now to Sweden, that doesn't help you,
15 does it -- over on the right-hand side, you see
16 that little triangular parcel, 27 hectares. Now
17 I've got an integrated plant at the municipal
18 level. I can come in as a private developer and
19 start developing a chunk of that for, in this
20 case, mixed residential and commercial
21 development. Remember this is brown field rehab.
22 And I know I've got district heating and cooling.
23 Now, if you're designing a building it's wonderful
24 not to have to put the chillers and the cooling
25 towers and all the junk that goes in a building,

1 if you know it's coming through the streets as a
2 utility. You can actually make nicer buildings.

3 And this particular site is going to run
4 river cooling, which will also drop the air
5 conditioning load dramatically, and there are
6 clearly parts of California where some form of
7 water based cooling could have a huge impact on
8 the peak demands of air conditioning.

9 This is not unique. Over 300 million
10 people, more than the entire population of the
11 USA, get their domestic heating and hot water from
12 cogenerated sources. So we're not talking -- and
13 I picked these two examples not because Arnold
14 Schwarzenegger has a, you know, home base in
15 Vienna. These two examples are actually the
16 global benchmarks for carbon dioxide and energy
17 density of any major urban center in the world.

18 And if you look at the little mermaid --
19 can you see the little mermaid on the right, the
20 statue in Copenhagen -- if you look across the
21 water, you see the, I think it's a 1500 megawatt,
22 but I need to be careful as I'm being recorded --
23 combined heat and power plant which is supplying
24 the bulk of the heating and some of the cooling
25 needs of the city of Copenhagen through

1 cogeneration.

2 If you get a little closer to home, down
3 the road in the west, now we're really to Davis.
4 There's a new development being proposed. It's a
5 European village concept in the sense that it's
6 mixed use range of homes, fairly intimate, minimum
7 transportation, maximum social interactions. And
8 it's being built effectively as a village. And I
9 want to thank the California Energy Commission for
10 supporting a small study which is between some
11 European -- a European and American team, to
12 actually look at this village and say could this
13 be a candidate to go to a breakthrough in energy
14 supply. It's got the scale. It's just about big
15 enough to look at a different way of heating,
16 cooling, and conditioning that village.

17 PG&E, a part of the team as observer,
18 support and information source, so rather than
19 seeing this as a conflict with the IOU, we see
20 this as possibly even an interesting
21 diversification of business opportunity. The
22 study was literally launched this month, within
23 three months we'll have the assessment as to
24 whether the investments really make sense and
25 whether we can achieve those breakthrough goals by

1 using effectively distributed cogeneration,
2 combined with an integrated district energy system
3 and high efficiency homes, which would be
4 substantially more efficient than Title 24.

5 If this breaks through, your energy
6 footprint just went down dramatically. Your peak
7 cooling load fundamentally disappeared. You
8 actually end up with the irony that you have too
9 much electricity and not too little, because once
10 you start using heat for cooling you often end up
11 with your problem is the reverse. Now I've got to
12 dump electricity rather than dumping heat. Now,
13 the mermaid dumping electricity is not a problem
14 because there's plenty of other people who need
15 it. But one day, the day will come.

16 Okay. So let's -- you can't go back and
17 rebuild the way cities have been built, you know.
18 The cities have evolved the way they've evolved.
19 So the Mannheim example is interesting, but that
20 116 years of history has been different from the
21 116 years history of Sacramento or San Francisco,
22 or wherever. But I think you can start looking at
23 a pragmatic approach, to pick up the language from
24 the study there. Focus on scale developments.
25 There are urban and urban-like developments which

1 have sufficient scale where the economics have an
2 integrated solution makes sense.

3 We've already had some sort of very
4 useful conversations with SMUD about two or three
5 months ago. You know, the Sacramento railyards,
6 that's what, 600 acres, something in that range?
7 You know, that, that's a decent sized town. Well,
8 maybe that's a candidate. Big industrial
9 commercial zones. Sports facilities are wonderful
10 because ice rinks need cooling 365 days a year, 24
11 hours a day. They are the utility's dream if
12 you're trying to get rid of heat. Swimming pools
13 and sport centers, the same. Major retail.

14 It may surprise a lot of people that at
15 today's energy prices, half of the cost of running
16 a large supermarket -- sorry, half of the profit
17 of running a large supermarket disappears in
18 energy. Half of the profit disappears in energy
19 cost.

20 So that's another way to look at it.
21 And then things like a Carvel Village where we're
22 seeing these high density residential
23 developments, including, you know, managed care
24 communities and resort communities which really
25 are villages of one kind or another. And wherever

1 possible, try to find ways to connect the dots.

2 In Carvel we're looking across the street at a
3 swimming pool and a sport center as possible heat
4 loads. So try to connect the dots.

5 Engage the commercial developers. It's
6 tough. This is asking them to work a different
7 way. But at the end of the day when they get it,
8 they suddenly realize I can sell this building at
9 a premium price and it's probably going to cost me
10 the same or less to build it. And once they get
11 that, then the guys in the camel hair coats and
12 the Hummers really get going.

13 It's not competition to what we've
14 talked about for the last five or six hours. This
15 is another piece of that supply puzzle. It's
16 where you have the density, where you have the
17 opportunity to integrate the solution where it
18 makes economic sense in the context. It's another
19 opportunity to complement the solution.

20 And clearly, you know, all cities have
21 to deliver competitive energy services, absolute
22 security of supply, decent environmental
23 performance, and good economics. Otherwise, that
24 city will not be competitive. And I think this is
25 just a little piece of that puzzle. And again, I

1 come back to innovation. If California learns how
2 to do this effectively there is a willing and open
3 market for this kind of expertise all over the
4 USA, because a lot of the problems we've talked
5 about today are generic in any 19th, early 20th
6 Century energy architecture, which is now facing
7 the reality of vastly increased fuel costs,
8 because that's fundamentally what we're looking
9 at.

10 So thanks very much. That hopefully
11 gives one more piece of the puzzle. Thank you.

12 MS. BORBELY-BARTIS: Thank you, Peter.
13 Do we have any questions here?

14 CHAIRPERSON GEESMAN: Just a very
15 general one that we talked a bit at lunch about,
16 Peter. And that is, where is the third party
17 business model in your thinking, and why, why have
18 not the various energy service companies that have
19 aimed to provide at least some portion of these
20 services, why haven't they been more successful?

21 MR. GARFORTH: I think I'd go into the,
22 I would go into the inertia territory, I'd go into
23 the scale territory. We, collectively, this is a
24 collective "we", Western Area, North America,
25 essentially developed our utility and energy

1 supply infrastructure as public monopolies. And
2 then, and they became huge scale, huge political
3 power. And that's not bad or good; they did what
4 they did under the guidelines we gave them.

5 This has been, this kind of approach has
6 really only been practical technically within the
7 last 10 or 15 years, and I think we have to
8 remember that. To put together the distributed
9 generation, to put together the -- some of the
10 absorption chilling, some of the building
11 technologies, some of the building management
12 techniques, there are some real technological
13 questions here. Unless you have that accident of
14 history that developed the municipal
15 infrastructure the way Scandinavia and Germany
16 did, which is another accident of history, then
17 really you couldn't go back and rebuild until very
18 recently, because the technology fundamentally
19 wasn't there. Maybe 20 years is a better time
20 window, but it's in that range.

21 It's always tough to compete with an
22 infrastructure that's been there for 100 years, is
23 enormously well-capitalized, enormously well-
24 connected, and you come in as the new kid on the
25 block with a rusty pickup truck and \$3 in the

1 bank. I mean, I think that was -- I think scale
2 was a piece of the challenge.

3 I think the other thing that was a piece
4 of the challenge was, back to the mythology, was
5 the -- the inertia was so great that truths became
6 truths without being tested. And I hope a little
7 bit of what I'm trying to do today is to just put
8 a few of those truths and say maybe we can look at
9 them again.

10 But the bottom line is there are very
11 few, even in the world, very few scale energy
12 service companies that can take on these kind of
13 projects at the scale that you need to be
14 successful. They're in the big handful, maybe, if
15 you're being kind, to -- to the marketplace.

16 MS. BORBELY-BARTIS: Any additional
17 questions or comments?

18 MR. FLORY: I have one. What's the one
19 or two most practical next steps that California
20 could make, could take, if you wanted to move more
21 in your direction?

22 MR. GARFORTH: I would like it not to be
23 my direction. It's a sharing of data, number one.
24 Otherwise, it becomes --

25 MR. FLORY: The direction that you

1 presented today.

2 MR. GARFORTH: Okay. I think, number
3 one, recognize when real opportunities exist. In
4 other words, you have a -- scrap infrastructure
5 where there's very little economically vested in
6 the existing infrastructure, which is why brown
7 field is very often a good place to start. Or
8 very old office buildings, you know. I'm doing on
9 in Toledo, a 40-year old office building, where
10 the whole plant's going to be replaced anyway. So
11 I think one is find the right projects.

12 Two, engage the traditional utilities.
13 Don't see it as competition, see it as an
14 engagement. Whenever I'm developing one of these
15 projects my first phone call is to the incumbent
16 utility. And if the answer, if the signals coming
17 back are we're going to fight you tooth and nail
18 over this for whatever reason, be it emotional, be
19 it realistic, be it legal, I'll walk away, because
20 there are fights you win and fights you lose.

21 And I, I give full credit, and I want to
22 do it publicly, to PG&E. They've been very
23 engaged in this conversation with -- with Carvel
24 Village, as an example, and, you know, and
25 experiment to understand.

1 I think that's it. I think, you know,
2 and spend a little bit of time understanding the
3 arithmetic, that if I'm using the fuel at twice
4 its thermal value, I'm reducing the transmission
5 losses by not dragging it 300 miles across the
6 country, I'm putting it in a building that in and
7 of itself is using 20 or 30 percent less than a
8 normal, you know, code building would -- would
9 give me, the arithmetic isn't that difficult to
10 understand. You're going to end up probably with
11 better returns and a more valuable building.

12 But it's a change of thinking, so I
13 think there's that sort of educational effort to
14 understand the arithmetic. Not that complicated,
15 but it's, it just takes a little while to get
16 there.

17 MS. BORBELY-BARTIS: Yes.

18 MR. GARFORTH: And don't try and bite
19 off huge policy regulatory things. Sorry.

20 MS. BORBELY-BARTIS: Excuse me. Can
21 you --

22 MR. GARFORTH: Find successful, clear
23 win projects which are the right scale that it's
24 not a demo, it's an economically viable project.
25 We've had enough demos.

1 MS. BORBELY-BARTIS: That's exactly --

2 MR. GARFORTH: We've had absolutely too
3 many demos. I can build a building that uses ten
4 percent of cold energy. And your point is, can
5 you build 5,000 of those. Because that, that'll
6 move the needle.

7 MR. ABELSON: Given your description of
8 what's needed as sort of a basic set of
9 conditions, why is it that you seem tepid in
10 describing your discussions with SMUD and the
11 railyard? That would seem to be the classic case
12 in Sacramento, in California, next to the Energy
13 Commission.

14 MR. GARFORTH: Partly because I didn't,
15 coming as, you know, the English -- the English
16 guy from Toledo who was asked to share some, you
17 know, perceptions of markets, I didn't want to
18 come taking sides on what will, the end of the day
19 will be, you know, essentially local discussions.

20 Personal opinion, I think that would be
21 an absolutely kind of project to look at. But at
22 the end of the day, that will have to be a
23 combination of a political community, you know,
24 outreach and discussion to, to decide whether
25 that's really where to go. And the developer, you

1 know, developer or developers, I'm not sure even
2 what the legal structure is, you know, clearly has
3 to feel it's going to make money for him rather
4 than be a, you know, public good, you know,
5 dilution of profit.

6 But the -- on the surface, without
7 having done any analysis whatsoever, on the
8 surface it looks like just the kind of project you
9 should absolutely look at, within this context.
10 Does that -- sound okay?

11 MS. BORBELY-BARTIS: All right. Thank
12 you so much, Peter.

13 If we don't have other questions we'll
14 move on to our last speaker of the day, then.

15 Most of you actually are probably
16 already familiar with John Flory. John, are you
17 already loaded?

18 (Laughter.)

19 MS. BORBELY-BARTIS: What a question.

20 All right. We're going to close out our
21 last discussion here getting back to sort of
22 credit risk and capital markets, and the financial
23 and physical risk in those markets.

24 John Flory, I love this, that he got his
25 start actually right here at the CEC in 1976 as an

1 energy conservation specialist, so he has a long
2 history, once again, here in the state of
3 California. He was staffed with David Freeman for
4 a while, from there actually went on to the
5 California Power Exchange, and I'm sure he has
6 some -- if you haven't written a book yet on that,
7 then you should.

8 And in his current context, we've --

9 MR. FLORY: Too smart to do that.

10 MS. BORBELY-BARTIS: Well, you're still
11 working in the state; right?

12 Co-founder and president of the North
13 American Energy Credit and Clearing Corporation,
14 and that's what we're going to talk about today.
15 Potential products that could serve the market
16 there.

17 MR. FLORY: Great. Well, thank you all
18 for allowing me to speak today. I have, as many
19 of you do know me, I do have quite a checkered
20 history in this part of the country, one of my
21 last checkered experiences being with the
22 California Power Exchange.

23 About a year ago George Sladoje, who is
24 the CEO there, and I got together and said okay,
25 there's got to be a way to make lemonade out of

1 this lemon; what is it we can do. And as you may
2 or may not know, George was the number two guy in
3 charge of the Chicago Board of Trade for a number
4 of years, and we got thinking about what is it
5 that, that is going on in the industry today that
6 we can draw from and make things work better.

7 And the conclusion that we came to was
8 something that could enhance the credit management
9 practices in this state, building upon a hybrid
10 solution, some which draws from some of the
11 lessons learned from commodity clearing-houses,
12 but we can't use just a standard commodity
13 clearing-house example. And one of the things
14 that Mr. Huyck -- is that right? -- referred to
15 this morning is this religious or theology issue
16 about is electricity a commodity, or is
17 electricity a social good.

18 And most people who deal with clearing-
19 house solutions have thought of electricity as a
20 commodity. But one of the things we thought about
21 is that one of the common denominators, whether
22 you think about electricity as a commodity or
23 electricity as a social good, is credit. You have
24 to -- there's always an issue in a transaction
25 about credit. And so we have tried to use credit

1 management as our focus in putting this together.
2 And I would say that although we were thinking of
3 this in terms of the dimensions, those dimensions
4 of a competitive market or a social good market, I
5 think that also the centralized versus de-
6 centralized logic could also apply, because credit
7 is an issue, as well, there.

8 The other thing that we were thinking
9 about is, and George deserves as much credit for
10 this, is that, as most of you know here, one of
11 the things that differentiates electricity from
12 other commodities is it perishes like that. And
13 most other commodity marketplaces, they actually
14 sort of de-couple the transaction process from the
15 delivery process, and they can do that because
16 their product doesn't perish instantly.

17 And so in this marketplace, there needs
18 to be an integration of the delivery mechanism and
19 the transaction commodity marketplace, which sort
20 of led us to believe that you've got to integrate
21 the physical and the financial world of,
22 particularly power, and then, because gas is so
23 intertwined, you need to integrate the physical
24 and the financial worlds. And that's what I'm
25 going to talk to you about today.

1 This is not intended, even though I've
2 drawn from some of my slides that are -- were
3 initially commercially oriented, I'm not intending
4 here to give you a sales pitch, but I just want
5 you to understand that basic logic as to why we
6 have come to that perspective. I think it will
7 help to -- as some of the people have talked about
8 recently, is that credit, managing credit is
9 important for enhancing liquidity in the
10 marketplace and also for enhancing infrastructure
11 investment.

12 Just a anecdote to start this. I was in
13 a board meeting with some credit managers and they
14 had a trader sitting there, and they said -- and
15 they said, the credit guy said, what's the
16 problem? We've got, we have our credit risk under
17 control, and the trader said yeah, and I've got
18 two counterparties left that I can trade with. So
19 the liquidity had gone down the tubes. So, for
20 those of you who are statisticians, that's like
21 saying I've got the type one error under control,
22 but the type two error's gone crazy, or vice-
23 versa. So. Okay. So much for that background.

24 Okay. I've hit my first point pretty
25 much about the, or talked about the physical and

1 the financial relationship. And part of that
2 issue that we're talking about is that financial
3 reliability is tied to physical reliability. And
4 we've had some people say well, after August 14th
5 of last year no one cares about markets anymore;
6 they just care about physical reliability. Well,
7 if you believe in the -- at all in the model that
8 FERC is suggesting as the way to get to just and
9 reasonable rates, you get to physical reliability
10 through financial reliability. And as the
11 merchant generation sectors continued its credit
12 decline, and they had to post increased collateral
13 requirements, and they have less capital available
14 for trading on a forward basis or it's harder to
15 get -- to attract the capital for investment, you
16 start to bring that physical reliability and the
17 financial reliability together.

18 And I think as probably most of you
19 know, when we had blackouts here in California in
20 January of 2001, it wasn't a physical reliability.
21 It wasn't a physical issue. It was because people
22 were not getting -- the cogenerators couldn't get
23 credit extensions to buy gas because they were --
24 they were cut off on their payments from the --
25 from the IOUs, because they were -- didn't have

1 the cash. So it was, that just brought home to a
2 huge point this issue about the link between the
3 physical and financial reliability.

4 One of the people that we've had some
5 conversations with, a guy named Craig Pirrong from
6 the University of Houston, he spent some time
7 doing -- doing some analysis in other commodity
8 markets, and now he's in the global energy
9 management group in -- at the University of
10 Houston. And his comment is -- he's looked at
11 some data on the power markets in the U.S., and he
12 says there's a 25 -- over the last four or five
13 years there's been a 25 to 50 percent price
14 premium in the forward markets versus the spot
15 markets. And he says, and there's no other
16 commodity where that's the case. And he says a
17 lot of it's due to credit and market risk because
18 you've got this disconnect that's seen between the
19 physical and the financial markets in a couple of
20 dimensions, which we'll talk about later. But it
21 ends up in the consumers paying for this.

22 And one of the things that we're trying
23 to do, and this is not -- other clearing-houses
24 have tried to capture some of these benefits, but
25 when you allow the netting of transactions, and

1 I'll elaborate on this a little bit more, you can
2 significantly reduce the cash requirements and by
3 freeing up those kind of requirements it makes it
4 available to trade further forward. Right now you
5 have a lot of people who -- 90 percent of all
6 trading, to the extent there is any, is done
7 within a less than a year basis, and so if you
8 can't trade beyond a year it's harder to lock in
9 prices or to hedge your risk, and it just makes it
10 harder to get out of this cycle that we're in now.

11 And it also makes it easier to attract
12 investment in infrastructure, as I'll say in a
13 minute, and as Mr. Huyck alluded to earlier, we
14 have a whole new breed of investors in the power
15 industry today than we did earlier, the high yield
16 funds and et cetera. And they take into
17 consideration risk and the amount of their balance
18 sheet that's tied up for risk, credit risk and
19 other things. And so to the extent that we can
20 take some of those risk premiums out, it makes
21 life a lot easier. And we talk about lowering the
22 price risk, because lowering prices as you suck
23 this risk out of the system.

24 And so we've been looking at trying to
25 put a way together that's rooted in the RTOs,

1 because that's where the stuff ultimately comes as
2 a physical marketplace, and a system to put
3 something in place that the dealers don't have to
4 change their current, some of their processing
5 systems, that allows us to pay sellers weekly but
6 allowing the buyers to still pay monthly or 90
7 days, in the case of the California ISO. And, of
8 course, one of the other benefits of this, when
9 you have a clearing entity and you have, you know
10 you have real trades, bona fide trades, and you
11 get some reliable price indices.

12 We have a number of different people,
13 part of our organization, different backgrounds.
14 But I think the key thing also, as we said,
15 there's no sense in re-inventing the wheel.
16 Looking at other folks who already have a well-
17 positioned, well-established eye, so the
18 Intercontinental Exchange is already the largest
19 electronic energy trading broker platform. The
20 clearing corp in Chicago used to be Board of
21 Trading Corp. They've been around for 75 years
22 and -- know those folks pretty well. Harris Bank
23 was the bank behind them for cash management.
24 And then Marsh and McClendon, who's the largest
25 insurance broker in the world for managing risk in

1 the energy industry.

2 Some of you may not be real familiar
3 with the clearing-house concept. I think that is
4 sort of at the core of the value propositions. I
5 just want to explain that a little bit.

6 One of the key things about a clearing-
7 house is this, that there's one central
8 counterparty to all the trades. So what you have
9 now in the buying over the counter market is
10 people have to establish lines of credit with a
11 whole bunch of other, all their other trading
12 counterparties, or people they buy and sell from.
13 And if you consolidated all that in one place,
14 which is typically done in a lot of other
15 commodity industries, wheat, soybeans, pork
16 bellies, et cetera, it reduces the amount of lines
17 of credit you have, or collateral that has to be
18 posted to cover your trading positions. And so
19 there's some real efficiencies there.

20 The committee of chief risk officers,
21 the CROs, from large industries, represent about
22 half of the power and gas sales in the country,
23 talks about the -- it could be a collateral
24 reduction of 75 to 90 percent, and they talked
25 about this clearing, central clearing as one of

1 the best ways of not only mitigating credit risk,
2 but also improving liquidity and enhancing capital
3 adequacy to free up capital for other things.

4 And sometime in the last month, I can't
5 remember exactly where it was, but someone who was
6 interested in the competitive market structure
7 said the intriguing thing about the -- a clearing-
8 house is it potentially can help bring investment
9 stability to the competitive marketplace like the
10 regulatory compact brings to a regulated market.
11 I think that's a bit of an overstatement, but
12 there is some truth to that, and so I decided to
13 put the quote there. I think the long-term
14 contracts is the first most important key, but
15 this, this does fall in there with some other
16 things.

17 Just for those of you who aren't in --
18 large in a trading background, you have this sort
19 of a, we'll call it a liquidity cycle. As you can
20 -- let's see, which one -- okay. Come on, John,
21 you can do this.

22 Okay. On the far side of the -- the
23 right side of that graph there's something called
24 credit value risk that measures what your credit
25 exposure in the marketplace, and the further you

1 go out in time, the greater your credit risk. And
2 as I mentioned earlier, one of the reasons that
3 people have been doing shorter term trades is
4 because they didn't have the balance sheets or
5 didn't want to post the collateral to be able to
6 do longer term forward contracts.

7 And, of course, the shorter term markets
8 are more volatile than the longer term markets, so
9 you get this feedback loop in which I can't afford
10 to trade forward, so I end up buying more power in
11 the shorter term markets, and that just, you can
12 get greater volatility and even more capital tied
13 up, so you can keep moving shorter and shorter,
14 and there's this issue or challenge about
15 reversing the situation.

16 And one of the things that -- one of
17 the, there's a -- which a trade organization
18 recently talked about, he says that the markets
19 will continue to be less efficient or less liquid
20 as long as the physical participants continue to
21 scale back or exit. And one of the main
22 challenges they have is that -- is the posting the
23 capital, or the balance sheet or the collateral
24 requirements to -- in this higher risk
25 environment.

1 And as I mentioned earlier, FERC is sort
2 of clued to this. You'll see two slides I
3 borrowed from one of Sebastian's cohorts, Lee Ken
4 Choo, that we need to get to competitive markets
5 as the key focus there in terms of getting to the
6 just and reasonable rates, and liquidity is
7 absolutely critical to successful markets, and
8 enhance, we talked about clearing by reducing the
9 collateral requirements can enhance liquidity and
10 make things easier.

11 And then the challenge then becomes, in
12 terms of getting those collateral efficiencies, is
13 how do we address some of the seams that occur in
14 the market between the physical and the financial
15 markets in the energy industry, and particularly
16 the power industry, where most of the power that's
17 traded is on a physical basis.

18 And just a few highlights of things that
19 we've stumbled across, or into, in putting this
20 together. We've been working with some RTOs,
21 because I think it needs to be rooted in the RTO
22 markets in the northeast, New England, also in
23 Texas, we figured if we can capture those two
24 entities everyone else sort of falls in the
25 middle.

1 I talked about the cost commodity
2 netting. One of the things that we found is that
3 by defining it not as a commodity but as a account
4 receivable, you actually -- accounts receivable
5 are one thing that's common to all kinds of
6 transactions, whether it's power or gas, whatever,
7 and by netting those transactions you have the
8 ability to reduce risk and it doesn't matter what
9 the underlying physical contract is. So that
10 makes it, allows us to do more comprehensive
11 netting than what people have done before. And
12 this was, came up, Joe Desmond asked this
13 question, talked -- I guess he asked it of you,
14 Sebastian, about the issue around accelerating
15 settlements.

16 And clearly, what that graph on the
17 right shows is that when the cash comes in once a
18 month, that blue line on the top, your exposure
19 can get a lot higher than if the cash comes in
20 every week. And so from a seller's perspective,
21 you can significantly reduce your exposure to
22 credit risk by getting your cash on a weekly
23 basis. Of course, unfortunately, in most places
24 the buyers say wait a minute, I don't want to --
25 I'm not -- my money currently comes in roughly a

1 monthly cycle, I'm not interested in paying
2 sooner.

3 So if you can figure out a way to pay
4 the sellers weekly and then still allow the buyers
5 to do it -- or pay monthly by arranging some AR
6 financing through the credit markets, and we sort
7 of do an arbitrage, or not -- compute the time
8 value of the money and credit risk there, and it's
9 -- this is a flow back to the old accounting
10 concept of a two ten, net 30, in which a seller
11 would take a two percent discount if they got
12 their money in ten days, and you pay the net
13 amount if it's in 30. And even credit card
14 companies, they'll charge a retailer two to three
15 percent if they get their -- so they get their
16 cash sooner, rather, and they take care of the
17 collection risk. And so it's a concept similar to
18 that.

19 One of the other things that we've seen
20 that help make this work is the idea of using cash
21 versus non-cash collateral. I know that one of
22 the things that we saw, this is an organization
23 called the Natural Gas Exchange in Alberta, and
24 they also did a physical clearing of natural gas.
25 And they said, you know, ultimately, you're

1 clearing the physical gas or physical energy, the
2 commodity needs to flow. As, during lunch we
3 talked about as being a SMUD board member, that
4 ultimately -- you can keep your rates down, but
5 ultimately you've got to make the power flows and
6 gets, gets to the houses.

7 And the, what this clearing-house did
8 there is they had gas in storage that they could
9 call upon during critical times to make sure that
10 the physical gas actually flowed. And that also
11 tended to reduce their risk and insurance
12 requirements. And so that was another way of
13 enhancing.

14 Of course, for some people, we found
15 that there's -- the analog in the power industry
16 is you got power plants sitting there as reserves,
17 your -- services, it's kind of like a call on
18 power, something like you had the call on the gas
19 in storage. And so by integrating with the RTOs
20 and ISOs, you had a capability to draw upon that.
21 And there's some other dimensions related to
22 credit bureaus that I'm not going to get into.

23 But the key thing is, is that we do see
24 that although the conventional credit clearing-
25 house is at the core of the value proposition,

1 there are some things that can be done to now, to
2 take the credit risk out of the system, make
3 things work and fit the energy industry where it
4 is, rather than trying to make it become more like
5 the -- exactly like the financial industry, take
6 the credit risk out and make it easier for market
7 players.

8 And this, just skip over this. This is
9 a sales pitch.

10 One of the things I want to point out to
11 you in motivating the -- attracting investment for
12 infrastructure. You've probably heard of the
13 Sarbanes-Oxley Act, and people have to identify
14 what their risks are and what they're doing to
15 manage or control their risk. Well, one of the
16 challenges for a lot of the folks is the ISO RTO
17 pools, you have this pooled risk that's -- it's
18 not easy to get your hands around and try to
19 understand that.

20 And then one of the other things that
21 we've found is that there's a disconnect in how
22 the energy industry looks at risk versus how the
23 financial industry looks at risk. And this graph
24 you see on here is something that Credit Suisse
25 has developed, a model they have, Credit Suisse

1 Plus, that we've used, but it's not proprietary to
2 them, but they try to focus on not just what the
3 expected loss is, but also what the potential loss
4 is up to the 99 percent level. And the thing is
5 you need to reserve economic capital on your
6 balance sheets to be able to -- so you can be
7 protected up to the 99 percent level.

8 And a lot of energy folks we talked to,
9 they still focus just on expected loss. And so
10 you wonder why the financial industry isn't all
11 that excited about investing in the energy
12 industry. Well, their -- the energy industry's
13 ability, current understanding of just exactly
14 what risk they're facing is pretty basic. And, in
15 fact, one guy who understood it said if I said
16 what my risk level was up to that level I'd have
17 to go out of business, because I, I don't have the
18 balance sheet to be able to support it.

19 And so what we see and how that really
20 is driven home in this particular situation, as I
21 hinted at earlier, is a lot of the investors
22 today, fixed income funds, hedge funds, et cetera,
23 have grown up in the financial industry and would
24 say they're used to these kind of practices of
25 identifying and understanding their risk. And so

1 they actually take into consideration either the
2 collateral that needs to be posted to other
3 counterparties to protect against their risk, or
4 the amount of capital they should reserve on their
5 balance sheets to protect against someone else
6 defaulting.

7 And if you have a way of shrinking that
8 down so, for example, if we go from \$120 down to
9 \$100 as the capital that is soon to be consumed on
10 someone's balance sheet to make a project work,
11 all of a sudden now a project that was
12 unattractive can now become attractive, because
13 it's less, it's less capital intensive to make
14 things work better.

15 And then, of course, one of the
16 advantages of a central clearing-house like what
17 we've talked about is you can come in here and
18 take that risk off of the players, the market
19 participants' books, and so that they don't have
20 to -- to take that credit risk on their own books.
21 And what we see is a way of taking that and, using
22 another word, Mr. Huyck, essentially syndicating
23 it and moving that off and brokering in different
24 ways into different market -- financial market
25 participants in Wall Street. So we have a way of

1 instead of socializing it in a power pool, is to
2 identifying it, quantifying it, rebundling it, and
3 put it out there, out there in Wall Street, if you
4 will, to -- with a little bit more sophisticated
5 and better understanding of managing that credit
6 risk.

7 So, the summary slide. California's in
8 this situation today with the focus on the spot
9 markets as the main market mechanism in power,
10 trying to find a way to better manage the credit
11 risk and particularly a way to regenerate
12 liquidity in the marketplace and to get the one
13 marginal incremental thing that can be done to
14 enhance capital investment is to have a better
15 clearing situation that allows cash that comes
16 sooner to the sellers, takes the credit risk off
17 their books, and allows everyone to reduce their
18 balance sheet exposure. And that will make it
19 easier to attract investment as well as bring
20 trading back in so we can actually get a forward
21 price curve again in the market, so people can
22 figure out what their risks are and get some
23 trading again.

24 And that, and that applies whether I'm
25 freeing up electricity because I have a onsite

1 effective waste heat system so I can sell it back
2 into the marketplace, or whether I'm operating
3 combined cycle units and centralizing the grid.

4 Okay. Any questions? I think that's
5 all I have.

6 CHAIRPERSON GEESMAN: John, could you
7 describe, I think you had it labeled, but cash
8 flow contract --

9 MR. FLORY: Yes.

10 CHAIRPERSON GEESMAN: -- was a trademark
11 term, and I'm not certain that you provided any
12 details.

13 MR. FLORY: Right. Yeah.

14 CHAIRPERSON GEESMAN: What do you have
15 in mind there?

16 MR. FLORY: Okay. The cash flow
17 contract is something that we developed, have a
18 patent pending on, that we worked out for our
19 lawyers. Because in bankruptcy -- let's back up a
20 step.

21 In the Commodities Exchange Act, forward
22 contract merchants or swap participants are
23 provided bankruptcy protection, and for a forward
24 contract merchant it's for any trade that takes
25 place at least two days before delivery. And

1 most, in RTO or ISO spot markets there's less than
2 two days from the time the transaction takes place
3 until the time the power goes to delivery.

4 And so it's very easy that if there's a
5 bankruptcy declared it can, it can unwind all the
6 contracts and you can get thrown into bankruptcy
7 courts, as has happened here in California. One
8 of the main advantages of a clearing-house is its
9 ability to continue to ride through bankruptcy.

10 If you have a properly defined forward contract,
11 you're immune essentially to bankruptcy. People
12 still have to post collateral, the dollars still
13 have to flow, to be paid for the transactions
14 during, so you can ride through a bankruptcy and
15 not be caught up in that.

16 And so if you don't have that basic
17 bankruptcy issue solved, all that multilateral
18 netting that was done could come unwound, and at
19 that point you're as big of a mess than you were
20 before if you didn't have that. So you have to be
21 able to solve that basic issue. And this cash
22 flow contract, by defining the underlying not as
23 the commodity itself but as the account receivable
24 behind the commodity, and so there's more than two
25 days from the time the account receivable is

1 generated until the time it's actually due, we're
2 able to skirt that, that issue with the bankruptcy
3 code.

4 And so that's -- the Chicago commodity
5 lawyers we're working with said wow, that's a
6 patentable concept, so we've put a patent in on
7 that. They said there's a lot of people in the
8 commodities trading business that have come up
9 with patents now, so.

10 MS. BORBELY-BARTIS: Do we have any
11 additional questions or comments?

12 MR. FLORY: I probably put everyone to
13 sleep.

14 CHAIRPERSON GEESMAN: I actually have a
15 couple. You're zeroed in on what you identify as
16 a Triple B market. What changes in terms of
17 collateral requirements that your counterparties
18 have to meet if they get downgraded below Triple
19 B?

20 MR. FLORY: Okay. I didn't -- thank you
21 for asking that question. Let me elaborate on
22 that.

23 We anticipate taking on all the credit
24 risk that the ISOs or RTOs as a part of this
25 solution. It doesn't matter what the credit

1 rating is. For some of the entities they would
2 still be posting collateral like they would now --
3 but the difference is, is that today you have some
4 people that are posting collateral at the ISO, are
5 posting collateral, the people I'm buying gas from
6 over here are posting collateral, people I'm
7 buying gas over here. And I may, if I have a
8 forward position of power and the market was
9 against me, I'd be maybe posting collateral over
10 here.

11 And so what I've done for these guys is
12 that they still may be posting collateral but
13 they're doing it now in one place on what their
14 net exposure basis is, so it's by being the bridge
15 between the RTO market, the physical gas market
16 and the physical market, that we're able to --
17 forward power market, that we're able to
18 consolidate the, what the net exposure is and have
19 collateralization on that. So that's the advantage
20 for those who are below investment grade, even
21 though they would still be posting collateral,
22 it's just a significantly reduced amount.

23 CHAIRPERSON GEESMAN: The last question.
24 My guess is you've probably had these
25 conversations with FERC, but could you briefly go

1 into the question of whether, assuming that you're
2 successful in gaining participants to your
3 clearing-house, are you enhancing or diminishing
4 systemic risk by centralizing that clearing
5 function now where currently RTOs and ISOs are
6 absorbing that risk and nobody's -- nobody's
7 really paying much attention to it, I don't
8 suspect, in the market.

9 MR. FLORY: That's a fair question. I,
10 first let me, since you turn to that point. We,
11 we have reviewed this at both FERC and the CFTC
12 and a number of other places. And the CFTC, this
13 is no issue, but in restructuring today, in the
14 last couple weeks Sharon Brown Hruska, who's the
15 lead CFTC commissioner on energy issues, was just
16 -- she couldn't have been nicer as a complement on
17 this, because they're used to clearing-houses as a
18 way of better managing risk.

19 And just as an example, even
20 organizations like the Board of Trade, Clearing
21 Corp of Chicago, even though it had only \$100
22 million balance sheet, it had a Triple A credit
23 rating for a number of years because it wasn't
24 just their balance sheet, it was the way they had
25 the layers of protection set up, so it was all the

1 futures contract merchants behind them whose
2 balance sheets are also available.

3 And I think that that's the way to look
4 at what we're doing, is we have several layers of
5 protection, and it's not just our balance sheet
6 but also the -- I talked about syndicating and
7 brokering this risk into Wall Street, so we will
8 be bringing in the balance sheets of other
9 organizations in a slightly different way than
10 what's done, but at least similar in concept as at
11 the other standard commodity clearing-houses. So
12 it's not just our balance sheet. So it reduces
13 that issue.

14 And at least in other commodity
15 industries, where they've have the trillion
16 dollars of notional flow through them, they found
17 it to -- to, by having the right practices, a way
18 of reducing credit risk overall.

19 CHAIRPERSON GEESMAN: Thank you.

20 MR. FLORY: Thank you.

21 MS. BORBELY-BARTIS: I actually have a
22 quick question. Have you run out a case study on
23 a particular facility through this process? I
24 mean, what is the real delta in collateral, change
25 in collateral requirements we're talking about, or

1 delta in risk that we're talking about.

2 MR. FLORY: Well, first off, I made
3 reference there to the CCRO. We've done some case
4 studies, yes, but the Committee of Chief Risk
5 Officers actually did a study for the standard
6 energy market participant, and they said the
7 numbers are in the 75 to 90 percent reduction in
8 collateral requirements.

9 Just, just as a simple rule of thumb,
10 for a simple, simple merchant generator who
11 doesn't do much more than buy gas and sell power,
12 in a lot of places that you might go get 80
13 percent collateral credit for the power sales
14 against the gas purchase. So there, just right
15 there is an 80 percent potential reduction in your
16 -- in the collateral posted for the gas market.
17 So this has some real significant potential. And
18 some of the non-investment grade merchant
19 generators that we heard about earlier are getting
20 increasingly excited about this ability to bring
21 in the forward power and gas market.

22 MS. BORBELY-BARTIS: So they will re-
23 enter the marketplace.

24 MR. FLORY: Or at least not have to exit
25 the marketplace.

1 MR. TIGER: I have a question. If
2 things play out badly under your scenario, in an
3 RTO structure where a load-serving entity goes
4 belly-up, and traditionally, at least as I
5 understand clearing-houses, you basically
6 liquidate the collateral and the party that was
7 the trading entity is closed out of the clearing-
8 house. Right. And then if there's additional,
9 there are layers, the layers that you talked of to
10 try to make people as whole as possible. But
11 essentially, if you go bankrupt you're not --
12 you're not playing anymore.

13 In the energy markets where you have a
14 load-serving entity that's participating, you
15 know, NRTD, it's difficult to shut people out of
16 the market.

17 MR. FLORY: Can't let grandma freeze in
18 the dark. Right.

19 MR. TIGER: Yes. So how does, how does
20 this structure deal with that, that risk?

21 MR. FLORY: Okay. Good question. The
22 first thing I will say is that -- and we had, this
23 is a question that we, a question we get in
24 several cases. You're right. Ultimately, if
25 they're the provider of last resort they aren't

1 going to get cut off. But what we are able to do
2 is to set ourselves up to take up until -- to
3 cover all their exposure up through the time of
4 default, and to get some extra levels of
5 protection, say to cover out to 30 days beyond the
6 time of the default, so there's a buffer there.

7 At some point we've said that we may --
8 if we are clearing the whole RTO market, at some
9 point they may have to go back over to the pool,
10 but at that point -- even California, in 2001,
11 figured out a way to have -- to backstop PG&E and
12 Edison within 30 days. So, and there are some
13 other states that are taking actions, like New
14 Jersey has said it will, it guarantees it'll have
15 some mechanism in place within 30 days. But
16 you're right. There's this little tail for the
17 provider of last resort that becomes a challenge.

18 Now, other states, like New Jersey,
19 where they have their basic generation service in
20 which they now have other parties supplying the,
21 the power, or that contract out the
22 responsibility, you have to -- you have to blow
23 through those entities as well as, say, people
24 like the PSE&G behind them before you would get
25 this situation. So when you have to blow through

1 -- there's like another level of default that has
2 to take place before you find yourself in that
3 situation. So there are some things that are
4 being done.

5 But, but ultimately, there is potential
6 tail event that we would say we -- we can't get
7 cost -- at this point we recommend turning it back
8 over to the pool because the -- to go beyond this,
9 the insurance cost is just beyond what it's worth.

10 But the flip side of this, though,
11 Sebastian, if we had -- another question I'm going
12 to answer that's kind of a -- following this, is
13 what happens, would you have been able to stop
14 California from falling apart if we had had this
15 thing in place. And, first off, if we had only
16 had it in place for -- for a couple of months
17 ahead of time, the answer is, of course, not. If
18 this had been in place for two or three years and
19 it was something that was established, and the
20 utilities were used to using it, and we had -- one
21 of the things we do for larger entities is we'll
22 have credit default swaps behind them, because
23 that's a way to -- the best way to most
24 economically handle that. And we could've had a
25 credit default swap behind PG&E and Edison that

1 could've absorbed a huge chunk of it, or we'd have
2 scale -- scaled up to absorb that.

3 So we believe that if we'd been -- had
4 this in place for awhile. But, of course, just
5 like the PX's block forward market, it had been in
6 place for awhile but no one was still really using
7 it fully, and so it didn't fully solve all the
8 problems either. So it depends upon what the
9 situation is.

10 Nothing works when shoved into place at
11 the last minute. You need to be working and
12 building towards a longer term solution.

13 MS. BORBELY-BARTIS: All right. Do we
14 have any other questions, comments, or insights
15 for the Commissioners or for the speakers today?

16 Okay. With that, I think we're going to
17 close it, then. Thank you so much for coming
18 today. We all really appreciate this.

19 (Thereupon, the California Energy
20 Commission Integrated Energy Policy
21 Committee Workshop on Project Finance
22 was concluded at 3:18 p.m.)

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